Clinical Lecture
ON THE
TREATMENT OF PNEUMONIA.

Delivered at St. Mary's Hospital, May 10th, 1862,

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GENTLEMEN,—There are three cases of pneumonia under my care in Albert ward this week, to which I have drawn your attention as illustrative of those of the most common phases under which you have to treat that disease in the adult.—No. 1. Frank, uncomplicated, double pneumonia, in a temperate, robust man; excessive dyspnœa. Cured by venesection, jacket poultice, food every two hours, wine.—No. 2. Pneumonia of upper and lower lobes of right lung, very slight in left lung, in a broken-down old man. Cured by cupping in front, jacket poultice, food every two hours, and wine.—No. 3. Congestive pneumonia of one lower lobe in typh fever. Cured by half-jacket poultice, cupping below scapula, food every two hours, wine, and bark.

(*The details of the cases are omitted here to save space.*)

In pneumonia a terribly vital organ is smitten, and so far as the disease extends the destruction is total. A consolidated or even congested piece of pulmonary tissue is impotent to fulfil its functions, and yet that those functions should be fulfilled is essential to animal existence. It is easy therefore to see that the gravity of the pneumonia is in a direct ratio to the quantity of lung involved. The degree or form of the inflammation or condensation is of much less moment, so far as immediate danger is concerned, than the extent of tissue over which it is spread.

Hence comes the importance of having some ready and effectual means at hand of checking the march of the inflammation to fresh parts. If we can do this, we contribute more certainly to the patient's life than if we regulate, however favourably, the progress of it in already affected places. No means is so readily applied, so immediate in its operation, as bloodletting. Its action has not to be waited for, like that of drugs in medicinal doses, but begins at the moment of application. That is a great point where time is so valuable. I believe also that it is the most powerfully effectual of the agents at our disposal, and that, rightly used, it is the saving of many a life in pneumonia.

The beneficial action of bloodletting in pneumonia is mechanical. It is more a question of hydrostatics than of physiology. The pathology of pneumonia is as follows:—By the temporary death of a portion of the lungs, the blood cannot be quickly enough passed onwards through their tissue; it can run freely as far as the right side of the heart, but there it is stopped; the throng pressing onwards from behind makes matters worse, and thus the balance between the venous and arterial heart is destroyed. You can feel the apex of the organ beating strongly against the ribs, the muscular action being excited by the presence of an unusual amount of venous blood; yet the artery at the wrist is at the same time striking your finger with an imperfect, weakened force.

Take away some of the blood from the veins, and the balance is restored—the pulse becomes "freer," as the technical phrase is; that is to say, the heart being relieved of the undue crowd in the right side, is not arrested in its contraction, but is able to close upon its contents, and supply them steadily to the arteries.

The advantage of general and local bloodletting is of identically the same nature, though they differ somewhat in degree, and are diversely applicable. Where the patient was, previous to his current illness, in vigorous health, actively digesting his food, and actively renewing his tissues, he will bear, and easily repair, the detraction of a good large quantity of blood; and a good large quantity of blood is most conveniently drawn from the arm. To get, therefore, the full advantage of the remedy, and be on the safe side, you should practise venesection. But if the pneumonia has come on a person previously an invalid, or in weak health, you fear for the possible bad consequences of your treatment, and you cast about for some means of getting the greatest advantage out of the least loss of blood. This is obtained by cupping the region of the heart. Your six or seven ounces taken from thence, in a delicate invalid, seem to produce a corresponding effect to twelve or fourteen let from a vigorous man's arm. But there are practical inconveniences in cupping to a large amount in this situation. You are obliged to cut deep to obtain a good flow, and deep cuts cannot be stopped easily, but go on oozing unperceived into the poultice which, as I will instruct you presently, is to be put round the chest.

Remember that in letting blood you are wielding a dangerous weapon. While from a mechanical point of view nothing can equal the aid it gives, at the same time its more remote or physiological action is hurtful. The shrewd comedian tells us, "necesse est facere sumptum, si quæris lucrum;" so that if you have gained the inestimable boon of a restoration of balance in the circulation, and a consequent relief of dyspnœa and an arrest of the progress of death in the lungs, you must not complain if some evils attend the process. The mere loss of so much "liquid flesh" is in itself an evil, but a minor one; of greater import is the increased proportion of effete fibrin and water which it induces, the diminution of red globules, and the consequently diminished power to bear up against the destruction, however temporary, of so much pulmonary substance.

Judge, therefore, of the necessity for this treatment by the balance between the heart and the arteries. If the apex of the former organ strikes strong while the pulse at the wrist is defective, act freely and confidently. If, on the contrary, the ventricles are weak while the pulse is full, large, and rapping, be cautious in what you do, and if you draw blood at all, let it be by cupping the chest.

You will find in some lectures on Medicine rules about bloodletting in pneumonia attempted to be deduced from the supposed degree of consolidation of the pulmonary tissue. These rules are singularly foolish and inapplicable to practice. They say you should bleed so long as you know that the lung is in its first stage of consolidation, (i. e., congestion,) as indicated by fine crepitation and incomplete dulness; and that you should not bleed after it has once become so completely consolidated as to admit no air into the finer bronchi—a state declared by the sound of coarse crepitation and complete dulness. Such a rule is quite useless at the bedside, and will often prevent your employing active practice in cases where it is urgently required. In the first place, in a majority of cases fine crepitation is masked by the mixture of coarse, produced by the presence of catarrhal mucus in the larger bronchi, especially in the catarrhal pneumonia of young persons. If you wait till you can hear distinctly fine crepitation, you will wait too long. Then, again, the dulness of congestion is not necessarily incomplete, as you may satisfy yourselves by examining a case of transitory congestion in continued fever, which is often very absolute, though it is so transitory that a mere change of position may remove it in twenty-four hours. Then, again, a slight collection of serum in the pleura may make the lower lobe dull at the very commencement of pneumonia, and prevent your bleeding at a very early stage, if you were to follow the rule I quoted. But the most truly important consideration and the most serious objection to the rule is, that you may have all stages of partial tissue-death going on at the same time: one lobe, or one part of a lobe, may have advanced even to yellow hepatization, while another part is entering into red hepatization, and in a condition which most would agree is that capable of benefit from letting blood. Your best guide to the necessity will be the dyspnœa, and your best check, the balance of the heart and arteries, as I have explained already.

Remember now what I told you about bleeding in a former lecture on "Anæmia and Bloodletting"—*be careful to supply material in the place of that which you are taking away.* Let the patient be fed with beef-tea or milk every two hours, just as if he had typh fever. I mention this part of the treatment next to the bleeding to remind you of the close connexion which there is between the two, and because of the immense importance of it to your success, whether you elect to bleed or do not.

I now come to a direct restorative, about the use of which at all times you need have no manner of hesitation. You can always, without any exception of age, sex, condition, cause, or complication, follow a treatment to which I attribute more power of saving the lives of pneumonic patients than to any other, and which you see me apply in all cases; I mean, the enveloping the chest in a large bath-like poultice. The action of warmth and moisture on animal tissues tends directly to

increase their vitality. You may *see* with the naked eye a healthy surface of skin under their application renew its life; it empties itself quicker of its pale, livid, venous blood, and glows with a fresh access of the bright arterial stream; it swells up elastically with fresh juices; it is more delicately sensitive when used for the purposes of touch; at the same time it feels no pain, but, on the contrary, an exquisitely pleasurable calm. You cannot see this renewal of life in internal organs; but you may infer that what takes place in one tissue takes place also in another with modifications dependent on distance and other difficulties of application. And you may infer it also from the results; for you find the dyspnœa diminished, the breath being easier drawn in spite of the weight of the poultice; the hot, fevered skin becomes moist and active, and soon the ribs begin to move again and air is readmitted into the previously paralysed lung-tissue. These effects are the most strikingly shown in the case of infants, whose thin chest-walls are rapidly and efficiently permeated by the influences of the poultice, and in whom also this remedy is the only one really safe and invariably necessary. I cannot speak too strongly of the importance of your adopting it, and letting all other treatment be rather rejected than this directly restorative agent.

The poultice is best made of bruised meal, because that keeps moistest. It should be spread half an inch thick at least, on a cloth or flannel, as broad as the circumference of the thorax. If any portion of the upper lobes is inflamed it is essential, and even if only the lower lobes are inflamed it is prudent, that it should be deep enough to cover the whole chest from the collar bones to the hypochondria. Lay the patient on it on his back, and fold it across the front until it meets. In adults it will usually keep in its place of its own accord; but in children it is useful to have a tape stitched on in front and a tape behind, which you tie over each shoulder in the manner of a shoulder-strap, otherwise the little prisoners wriggle out of their soft breastplates. When once you have got it *in situ*, keep it there, and desire the nurse, on pain of dismissal, never to take it off till another hot one is ready to go on.

In low fever the continuous poultice somewhat stands in the way of the cool sponging. But, in practice, this last important part of the treatment becomes less necessary at the period when congestion and pneumonia occur; the skin has then become cooler and more active. Besides, the poultice often takes its place by softening and suffusing with a gentle perspiration the whole body. I have often had pneumonic patients complain of the way in which it makes them sweat.

Alcohol, especially in the form of port wine, is very useful in treating pneumonia. Even in hearty temperate persons, when you are going to bleed, it is desirable to give a little, as was done in Case 1. A glass of hot negus before the operation makes it safer; and whenever you observe the nervous system prostrated by the extent of the disease, so as to produce tremor of the hands, quivering of the tongue, delirium, dry brown tongue or a tendency thereto, throw in a little wine from time to time. In old persons, especially in the upper classes, who have been used to good living, and in persons of all ages who have indulged too freely in alcoholic liquids (like Case 2), you need not wait for any symptoms as above described, but begin with wine immediately. In children it is not required, and they get well quicker without it.

In the pneumonia of typh fever, position is of great importance. As long as the walls of bloodvessels retain their natural elasticity, they are able to resist the gravitating force which acts, of course, on the blood as on all matter; but when their life is lowered in disease, the elasticity is the first vital property which suffers, and the blood then gravitates towards the lowest part of the viscus. This is especially the case in typh fever. Lay the patient, therefore, on the side opposite to that affected (as was done in No. 3), or even on his face for a time, if both are affected; and thus the very force of gravitation, which you feared as an enemy, becomes a friend, by withdrawing the congestion from the weaker point. This boy was cupped on the side. You need not be afraid of a small loss of blood in typh fever, where an important viscus requires it. A large portion of the vital fluid you take away is poisoned and dead already, and unfit for the purposes of life; so that you are not robbing the patient to the full extent of the quantity drawn. You saw this lad was much more lively after his cupping than before. It is better to draw it locally than generally, because local benefit is expected from it, and not general.

I always abstain from giving purgatives in pneumonia. My reason is, because I have observed that patients who have diarrhœa at the same time generally do very badly; and if natural diarrhœa does harm, I infer that artificial diarrhœa does harm also. I prefer to produce constipation by opiates, where it does not already exist. If the rectum gets blocked up with fæces, it is easy to wash it out with warm gruel.

Blisters, also, have seemed to me to do harm in a few cases where I have seen them employed before the patient came under my treatment. It is usually non-medical persons who put them on, under the general idea that they are good for a cough with pain in the chest.

Nothing has been said about antimony and mercury, drugs formerly much used in pneumonia. They are destructives, and I cannot see that there is anything to be destroyed in this disease, or that there is anything whose destruction would aid the employment of direct restorative treatment. When I used them, I was frequently obliged to leave them off on account of bad symptoms attributable to their agency, and I always felt doubtful if success in prosperous cases could be traced to them. But in all diseases which have been under treatment before yours, pray never let a word escape your lips, or a thought dwell upon your minds, about the patient being worse for the means previously employed. Most probably the harm done even by the most unsuitable drug is inappreciable; for a sick man is a tougher animal than we often give him credit for, and will stand a vast deal of faulty physic, and it can hardly be but what some of the treatment has added to his chances of life more than if he had been let alone. Besides, we are all infinitely fallible, God knows, and it is not for us to judge of circumstances we have not seen.

ON

THE MECHANICAL TREATMENT OF HIP DISEASE.

BY WM. C. HUGMAN, ESQ., F.R.C.S.,

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THE following case, I think, offers some points of interest in a practical as well as a pathological point of view:—

Miss K——, a young lady aged eighteen years, was placed under my care about two years and a half since, presenting all the usual characteristics of hip disease, with shortening of the affected limb to the extent of about four inches. She dated the commencement of her illness at three years prior to my seeing her, and told me that it began with "rheumatic" pains of the whole limb, which continued for some months, and finally became localized in the knee and hip joints. She had been obliged to maintain the recumbent position, resting on the unaffected side for the last three years, and latterly, owing to the tendency of sores from pressure, had been provided with a water bed. Her general health was not so much impaired as might have been expected from the long duration of the disease, and all the active symptoms appeared to have subsided, although she could only get across her room with the help of her high-heeled boot and crutches. Examination of the hip-joint showed, by measurement from anterior superior spine of the ilium to the upper margin of the patella, a shortening of an inch and a half; the nates being much flattened, and the whole limb smaller than the unaffected one. There was no indication of abscess around the joint. On attempting to flex the thigh, the pelvis rotated with it to some extent; but there was evidently motion, although very restricted, at the hip-joint, notwithstanding the long duration of the disease.

I entertained but very slight hopes of benefiting such a case, and gave my opinion accordingly; but as she was to remain in London two or three months, I was desirous of making the attempt. She was placed on the apparatus known as the prone couch, and soon became accustomed to the change of position, experiencing comfort from the removal of all pressure upon the affected hip. I commenced making extension by means of a strap round the ankle, to which a weight of seven pounds was attached. At the end of a week no appreciable effect was produced beyond a slight appearance of elongation, owing to the removal of the pelvic obliquity. The measurement from the ilium to the patella showed no alteration. The weight was increased to fifteen pounds, and afterwards to twenty pounds. No inconvenience was experienced from this treatment beyond a slight continued pain at the hip-joint, and stiffness of the limb caused by the traction made upon it. She lay amusing herself with reading and embroidery work, which is the great advantage the prone couch affords, allowing as it does the free use of the arms. When I visited her on the twenty-eighth day of

this treatment, I found that about an hour before my arrival the limb had suddenly elongated to the full extent: the ankles were perfectly parallel to each other. She was suffering much pain, and had of her own accord removed the weight. When she touched the ground with her toe it produced exquisite pain of the hip. A gutta-percha shield was then moulded to the part, and kept closely applied by means of straps. The prone position was maintained almost constantly for two months, after which she was allowed to walk with the support of her crutches; but for six months a very moderate amount of walking exercise was permitted. She has now perfectly recovered the use of her limb, and no subsequent contraction has taken place. A slight halt in the walk is all that remains.

I am perfectly at a loss to account for the *sudden* lengthening of the affected limb in this case. The measurements, as given above, would imply either that the head of the femur had actually escaped from the acetabulum, or that the upper margin of the cavity had become so much absorbed that, together with the loss by ulceration of the inter-articular cartilages, the shortening was the result of muscular contraction. Had no measurements been taken, one would have been disposed to consider it an hysterical affection; but, under any circumstances, I think it a case well worthy of record.

Guildford-street, Russell-square, Aug. 1862.

A Mirror
OF THE PRACTICE OF
MEDICINE AND SURGERY
IN THE
HOSPITALS OF LONDON.

Nulla est alia pro certo noscendi via, nisi quam plurimas et morborum et dissectionum historias, tam aliorum proprias, collectas habere et inter se comparare.—MORGAGNI. *De Sed. et Caus. Morb.*, lib. 14. Proœmium.

CHARING-CROSS HOSPITAL.

AN UNSUCCESSFUL CASE OF EXCISION OF THE ANKLE-JOINT.

(Under the care of Mr. BARWELL.)

THE statistics of ankle-joint excision give small numbers, but very favourable results. In Heyfelder's recent work* only 22 cases are recorded, in which death had occurred twice (once after amputation), and amputation was performed in two surviving cases. Mr. Barwell, in his treatise on Diseases of the Joints, quotes 30 cases, 5 proving fatal. It should, however, be observed that in several of the cases collated both by Heyfelder and himself, much more than the mere joint surfaces was removed, and in 6 others the operation was performed for injury. If we subtract these, and admit only those cases in which the lower ends of the tibia and fibula and the upper surface of the astragalus were removed for joint disease, only 18 cases can be gathered, 13 of which ended favourably, 3 died, and 2 survived secondary amputation—that is to say, the deaths are 16·66, those after amputation 11·11, and the favourable results 72·22 per cent. The number from which this percental reckoning is made is too small for any conclusive comparison, although it is interesting to place the results of amputation side by side with those of this operation. In Paul's large statistical gatherings,† we find 968 cases of amputation of the leg, with 249 deaths, which, reduced to a per-cental expression, give 25·73 deaths, with 74·27 favourable results; whereby we see that the deaths after amputation of the leg are about half as much again as after resection of the ankle-joint, while also the favourable result is slightly (two per cent.) larger, the difference being made up by two amputations after excision. Thus it is placed strongly before us that the most favourable termination of amputation is as a result much less valuable than that of excision; for the two secondary amputations are to be considered as amongst the bad endings for the latter operation, although the ultimate effect is exactly the same as in the best cases of amputation. The results of the cured cases of excision have given a useful and in most instances an extremely valuable and very sightly limb. We regret that we must add an item to the fatal list in the following case:—

Ellen W——, aged twenty-five, tall, well-built, and strong-looking, was admitted into the Charing-cross Hospital with a diseased ankle, under the care of Mr. Canton, Jan. 15th, 1862, and by him transferred to Mr. Barwell's care. The disease began about seven years ago, the patient says, with a slight sprain; since that time the joint has been sometimes very painful, sometimes free of any bad symptoms, but never quite strong. At the end of September last she hurt the ankle very much by getting her foot into a hole in the pavement. When she came into the hospital, it soon became evident that decided measures would be necessary; and when she was placed under Mr. Barwell's care, it was with the understanding that some operation should be performed.

March 1st.—The patient having been brought into the theatre and placed under the influence of chloroform, a more careful examination of the joint was made. The parts around were swollen, puffy, and somewhat discoloured. There were three open mouths of sinuses: one in front of the outer ankle, about over the part where the corners of the first four bones of the tarsus converge; along this sinus the probe passed backwards and inwards, coming in contact with softened bone. Another sinus was a little behind the outer malleolus, and therein a probe ran straight across in front of the tendo-Achillis to a third opening behind the inner ankle. On moving the ankle-joint crepitus was felt. An incision was made behind the lower part of the fibula to just below the malleolus, and thence another carried forward in the direction of the peroneus brevis tendon for about an inch and a half, and the angular flap thus formed was turned forward. All the parts bled much more freely than usual. The finger now passed into the wound discovered the whole anterior edge of the joint to be rough, and the cavity itself completely open. As, however, the other bones of the tarsus appeared perfectly sound, the operation of Moreau appeared to Mr. Barwell preferable to all other methods, since it spares every tendon, nerve, and important vessel; he therefore took out the ankle-joint by this procedure. The parts bled very freely when first incised, nor did it appear that the effectual pressure which was made on the femoral artery by Mr. Hird produced any diminution of the hæmorrhage; but all the surfaces, after they had been exposed for a few minutes to the air, ceased bleeding. The patient was some time inhaling chloroform before it took sufficient effect, and a considerable time was employed in the investigation of the joint, but the operation itself was not of long duration. She was taken to the ward, and, when seen an hour afterwards, expressed herself as tolerably comfortable. At eight P.M. she was not in any severe pain, and was ordered twenty-five drops of laudanum.

March 2nd.—Ten A.M.: Some oozing had taken place in the night, and she slept very little. The blood effused has putrefied, and has a most offensive odour; the spoiled dressings were changed. Ordered a quinine mixture, and to repeat the opium.

3rd.—Again a little oozing, but very much less. Pulse rapid, and with a singular thrilling or tremulous beat; hardly any appetite. She had an enema last night; the tongue is clean.

4th.—There is a marked change in the patient's countenance; the varied colouring of the features has sunk into a uniform dusky-yellowish hue. During the night the wound began to bleed pretty freely, and at the same time she had an attack of profuse menorrhagia, although she had only ceased menstruating a week previously. The dressing was changed, and she was ordered a pill of gallic acid and opium every four hours. Subsequently she had a long-continued shivering fit, and her nose burst out bleeding violently.

5th.—She seems a little better; pulse rather less fluttering and irritable; tongue tolerably clean. Ordered the pill thrice in the day, and also fifteen minims of tincture of sesquichloride of iron in aniseed water, three times a day.

6th.—Very pale and yellow; conjunctivæ excessively white; pulse weak and rapid, with the same peculiar thrilling beat before mentioned; the breath has the peculiar sweet odour so often accompanying purulent infection. She has pain in the right knee and arm; this she did not, however, mention until questioned.

7th.—Says she feels better; looks less pale; the right knee not so painful; some redness and swelling exist about the index and metacarpal joint of the left hand. The wound discharges very copious pus, consisting of an almost transparent liquor, containing small shreds; either the posterior tibial tendon, or the fibrous sheath which was opened and turned

* Operationes Lehre und Statistik der Re-sectionen.
† Conservative Chirurgie der Glieder, p. 23.

back, is sloughy. The tongue is quite clean, and the pulse a little better. The existence of buboes was learnt from the sister for the first time; one on the right side is still open. The patient had carefully concealed this fact.

9th.—She is a little better; the pulse is improved, and the wound looks healthier.

10th.—During the night she again lost a considerable quantity of blood; and though at about two o'clock this was stopped, she remained long *in articulo mortis*. About eleven A.M. she became much worse, agitated and delirious, and died at one P.M.

This case, although it must go to the list of fatal events, does not in reality militate against excision, since the same result would probably have followed amputation even more speedily, as there would have been a larger wound-surface to ooze. When the parts removed in this operation were shown at the Pathological Society, Mr. Barwell felt inclined to attribute some of the after-symptoms to the chloroform. Afterwards, however, facts came out which led him to consider a syphilitic taint as the origin of the dyscrasia. There were no general symptoms of such a disease, and as the patient chose to conceal the truth, there were no means of detecting the fact prior to the operation.

KING'S COLLEGE HOSPITAL.

CHRONIC THICKENING OF THE EXTERNAL ORGANS IN THE FEMALE, WITH STRICTURE OF THE RECTUM; OPERATION; RECOVERY.

(Under the care of Mr. Fergusson.)

An elderly married woman was admitted into the above hospital in July, with general thickening and enlargement of the vulva, nymphæ, clitoris, skin and mucous membrane around and at the entrance of the vagina, of two years' duration. On the left side of the vulva existed a tumour the size of a plum, with a pedunculated base. Added to all these was a stricture of the rectum, and condylomata round the anus. These necessarily caused great distress and constant uneasiness, and she was most anxious to undergo any operation that held out a chance for relief. Accordingly on the 2nd August, when she was under the influence of chloroform, Mr. Fergusson excised with a common scalpel all the hypertrophied parts manifest externally which were thus involved in this state of chronic thickening and enlargement, including the condylomata. He then introduced a blunt-pointed bistoury into the rectum, and notched the stricture in various directions, so as to enlarge it. There was much oozing of blood after the first operation, which was controlled subsequently by gentle pressure by means of wet lint and a bandage.

In some remarks afterwards made, Mr. Fergusson observed that he was disposed to believe that the stricture was the cause of the condition of the external organs present in this female. It was more likely, he said, that this should be so than that the stricture should follow upon the other; and when once a stricture of the rectum is established, it was liable to produce such a state of the parts as was exhibited in this case, in consequence of the secretion from the bowel getting lodged in fissures and other parts of the genital organs.

Aug. 14th.—The patient is progressing most favourably, and is rapidly attaining convalescence.

ST. BARTHOLOMEW'S HOSPITAL.

REMOVAL FROM THE AXILLA OF A VERY LARGE TUMOUR, THE NATURE OF WHICH WAS AT FIRST DOUBTFUL; RECOVERY.

(Under the care of Mr. Lawrence.)

A male patient, aged about thirty-four, was admitted in the month of July with a tumour in the right axilla, which was remarkable for its size and prominence, somewhat resembling the contour and dimensions of an adult's head. It was of seven years' duration, and was seen by many surgeons, who, Mr. Lawrence remarked, allowed the tumour to grow until it had attained a considerable magnitude. It was not covered apparently by the pectoral muscles, but in the course of its increase it passed under the latissimus dorsi; it extended downwards on to the chest and backwards, where its prominence was greatest; several large veins coursed over it; it was tense and semi-elastic, and at first sight resembled a large cyst. Its nature, however, seemed doubtful, and no positive opinion was expressed as to its composition, although there was nothing in the patient's history to lead to the conclusion of its malignancy.

On the 26th of July, chloroform having been administered, a trocar and canula were introduced, but nothing escaped beyond a few drops of blood. Mr. Lawrence, therefore, proceeded to remove it, which was accomplished with facility, although the operation was cautiously effected. It was not firmly adherent, excepting perhaps to the latissimus dorsi, which formed an envelope around the greater part of it posteriorly. After its complete ablation, it was found to be a firm, unyielding mass, with a yellowish-brown exterior, mixed with some muscular fibres; and, on section, it looked not unlike encephaloid disease, but proved to be a solid, fatty tumour, undergoing suppuration of its lobules in some parts, which formed cavities the size of hazel nuts. The enlarged veins seen at first were simply due to pressure and impeded circulation.

Since the operation the patient has been going on well, and the large wound is rapidly healing.

ROYAL FREE HOSPITAL.

OPERATIONS FOR FISTULA IN ANO WITH GANT'S CONCEALED FISTULA KNIFE.

In previous instances we have had occasion to notice the convenience and advantage derived from this instrument in operating for fistula. In long, narrow, and tortuous fistulæ, the concealed knife—having no point or cutting edge until occasion requires—is most serviceable, and safer to operate with than the ordinary unprotected knife. In cases of blind internal fistula, it is well adapted for the more effectual performance of the operation; and in all cases this operation can be accomplished with more facility, owing to the fact that no director or probe is necessary.

We have lately had the opportunity of witnessing these advantages in two operations by Mr. Gant at the Royal Free Hospital. In one, a long and narrow fistula was in close proximity to the vagina. The division of the sphincter and bowel was accomplished far more readily than it could have been with the old unprotected knife and director; while for the inner opening of the fistula, being deeper than usual, the advantage of using a knife which is either blunt or sharp pointed, at pleasure, was very apparent. In the other case of a similar kind, the same advantages were conspicuous. This simple instrument is manufactured by Messrs. Weiss.

Reviews and Notices of Books.

On the Anatomy and Physiology of the Supra-Renal Capsules. By George Harley, M.D., Professor in University College, London.

The above is the title of the essay which obtained the Triennial Collegiate Prize lately given by the Royal College of Surgeons; and as many of our readers have watched with interest the various discussions that have taken place within the last few years regarding the supposed connexion between disease of the supra-renal capsules and bronzing of the skin, we think they will be glad to learn the conclusions arrived at by the author of this prize essay. The treatise is exceedingly long and copiously illustrated; and as it would be impossible to give anything like an abstract, we must content ourselves with a brief summary of the results given at the end. These are the following:—

1. The supra-renal capsules are not fœtal organs, but perform their function up to the latest periods of life.

2. The supra-renal capsules are not absolutely essential to life. When removed artificially or destroyed by disease, their function is vicariously performed by the other "ductless glands," more especially by the thymus.

3. Young animals support the removal of the supra-renal

capsules better than old ones (probably on account of the greater activity of the thymus in early life).

4. When only one capsule is extirpated, the other performs the double function.

5. A wounded capsule heals readily.

6. The supra-renal capsules are not marked by any great sensibility.

7. The removal of the right is more frequently attended with fatal results than removal of the left supra-renal capsule.*

8. The lower animals are liable to disease of the supra-renal capsules.

9. When death follows upon the extirpation of the supra-renal capsules, in the majority of cases it is in consequence of the injury done to the solar plexus.

10. The supra-renal capsules are richly supplied by blood-vessels as well as by nerves.

11. Their function is apparently intimately connected with the formation of the *red* blood-corpuscles.

Following these conclusions are a number of tables, showing that—

(*a*) In 39 cases of supra-renal capsular disease in the human subject, 28 males and only 11 females were affected.

(*b*) That of the 29 males, 15 were at or below the age of thirty-five, and 14 above it.

(*c*) That of 11 females, 6 were at or below the age of thirty-five, and 5 above it.

(*d*) In 46 cases of supra-renal capsular disease, both capsules were affected in 37, one capsule only in 9, cases.

(*e*) In 9 cases where only one capsule was affected, the right was seven times, the left only twice, diseased.

(*f*) In 46 cases of supra-renal capsular disease there was—

Tuberculous deposit in	20
Cancer	10
Fatty degeneration	6
Calcareous degeneration	6
Fibrinous deposit	1
Cystic disease	1
Gelatinous degeneration	1
Extravasated blood	1
Total	46

(*g*) In 10 cases of bronzing of the skin without supra-renal capsular disease, in which the sex is recorded, 8 were males, 2 females.

(*h*) In 7 cases of bronzing of the skin without supra-renal capsular disease, in which the age is recorded, 3 were under the age of thirty-five, 3 above that age, and 1 exactly thirty-five.

(*i*) In 15 cases of bronzing of the skin associated with supra-renal capsular disease, 11 were males, and 4 females.

(*j*) In these 15 cases, 9 were below the age of thirty-five, and 6 above it.

From these facts the following conclusions are drawn:—

1st. Supra-renal capsular disease is two times and a half more frequent in males than in females.

2nd. That it occurs with equal frequency above and below the age of thirty-five years.

3rd. That both capsules are (four times) more liable to be affected than only one.

4th. That the right capsule is much more liable (three times) to become diseased than the left.

5th. In diseased supra-renal capsules—

40	per cent.	are	affected	with tubercle.
20	,,	,,	,,	cancer.
12	,,	,,	,,	fatty deposit.
12	,,	,,	,,	calcareous deposit.

6th. Males are more liable to be affected with bronzed skin (either with or without supra-renal capsular disease) than females, the proportion being as 3 to 1.

Dr. Harley's essay is a valuable contribution to medical science.

* In the appendix to the paper it is also shown that the right is much more liable to disease than the left.

The Uses of Animals in Relation to the Industry of Man; being a Course of Lectures delivered at the South Kensington Museum. By E. LANKESTER, M.D., F.R.S., Superintendent of the Animal Product and Food Collections. pp. 380. London: Hardwicke.

THE first six of these lectures were delivered at the South Kensington Museum with the permission of the Committee of Council on Education. The notes had been prepared for the delivery of the second course when, as we regret to find, circumstances made it undesirable to continue any further systematic efforts for rendering practically available for purposes of education the collections placed under the superintendence of the author. In order, however, not to break faith with the public and the publisher, Dr. Lankester has been induced to put together in methodical form the notes thus made for a continuance of the lectures. He has also added to them the memoranda he had employed for a course given at the Royal Institution of Great Britain "On the Relations of the Animal Kingdom to the Industry of Man." In the second course the subject of the Uses of Animals has been treated more systematically than in the first series, so that the author has been enabled to make reference more particularly to those animal products which are used for medicinal purposes, and thus to supply the professional student with a popular outline of medical zoology.

Without pretending to afford any novel or recondite information in a scientific point of view, or to offer practical instructions to such as are engaged in occupations dependent on animal products, these lectures form a very instructive and interesting study for young people. They are written in a pleasant and easy style, and leave after perusal a favourable opinion of the author's powers of instructing a youthful or popular audience. Had the truth and point of the following remarks been sufficiently apparent to certain grown-up people, Dr. Lankester's labours would not have ceased upon the delivery of the first course of lectures:—

"Willow bark, ash bark, and the bark of many other British forest trees contain tannic acid, and have been employed for converting hides into leather. There is a bark brought from Australia, the mimosa or wattle bark (acacia), which also contains tannic acid. These are very important facts for people to know in this country; for you are aware that we are none of us going to live the whole of our lives in England. We all contemplate one day emigrating. If the Reform Bill be not passed, nor the paper duties repealed, or something else not done as we like, we make up our minds to emigrate; and therefore it is of the very greatest consequence that we should take with us a knowledge of the arts and sciences, and the great principles on which our manufactures are founded, to our colonies. If we had done so at first we should have earlier found gold and copper in Australia, and gutta-percha in Hindostan; and many more colonial manufactures would have been established, and the trade products of our colonies would be much more numerous than they are now. Then, I say, let us educate our boys now so that when they go out and see a thing likely to be useful they may not pass by it as if they possessed no more sense or intelligence than the wild animals of the region. By the diffusion of a knowledge of such facts as these amongst our population we shall contribute alike to the welfare of the colonist and the wealth of the mother country."

Dr. Lankester's Lectures might be used with much advantage as a reading-book at general schools and other educational institutions.

MUSIC AT GUY'S HOSPITAL.—The governors of Guy's Hospital have permitted the band of the Metropolitan Police Force to perform for one or two evenings weekly in the garden of the hospital. The first performance took place on Friday last, from six to eight o'clock.

THE LANCET.

LONDON: SATURDAY, AUGUST 16, 1862.

THE position and relations of the Fellows, Members, and Licentiates of the College of Physicians of London to surgical practice are so entirely revolutionized by the changes made in the code of Bye-laws about to be promulgated, that it is desirable to give an accurate idea of the nature and extent of these alterations.

The first great change is that on which we have already laid stress, and which in itself constitutes an important concession to the principles which we have advocated during many years, and which have at last emerged successfully from a sea of ridicule and opposition. Henceforth Medicine and Surgery will be recognised at the College of Physicians as one and indivisible,—the two uniting to form one science, which is described as that of Physic, and of which the practitioners are physicians. Thus every candidate for the licence or the membership of the College will be required to give proof that he has studied Anatomy, Physiology, and Surgery, as well as the more purely medical and obstetric branches of his art, and he will be examined in those departments. The most important distinctions between Licentiates and Members are: The Licentiate will be admitted at twenty-one, and the Member not before twenty-five. The Licentiate will be privileged to compound and dispense medicines for his patients, and practise Medicine and Surgery in partnership. The Member will be prohibited from dispensing medicines to his patients, either by himself compounding them, or through arrangement with a druggist; and will not be allowed to practise Medicine and Surgery in partnership. The Members and Fellows therefore must practise Medicine or Surgery without partner and by prescription. The Licentiate will have precisely the privileges which are now possessed by those who have obtained separately the membership and licence in midwifery of the College of Surgeons, with the diploma of the Apothecaries' Society. The Army Medical Board has, we understand, already expressed its readiness to receive the licence of the College of Physicians as an equivalent to these diplomas, and thus a kind of official sanction is at once given to the new grade. The Medical Council will undoubtedly recognise the title, and the Poor-law Board, Naval Medical Board, and other public authorities will not delay to join in the recognition. Thus this important act is in course of final consummation. All examinations after the present date will take place under the new regulations. Students therefore are particularly interested in analyzing the effect and character of these regulations, and preparing to take the necessary steps to conform to them, or in expressing any opinions which they may have as to the means of ameliorating them.

It is worthy to be considered whether the term allotted in the educational courses to Surgery is sufficient to secure proficiency. We are of opinion that it is not. The College of Physicians ought not, we think, to pretend to pronounce men qualified to practise Surgery on lighter grounds than the College of Surgeons now does; and we consider that two courses of lectures on Surgery and two years of surgical practice are necessary for the candidate for the licence at the College of Physicians. Moreover we would impress upon the Council of the College of Physicians the force of a representation which we recently addressed to the Council of the College of Surgeons, but which has not yet been acted upon, although we feel little doubt that it will, after the usual amount of hammering has been gone through which is necessary to drive the point of any truth into the heads of certain leading members of that Council, should it not have originally occurred to their own minds. It is nothing less than a false pretence to declare any man fit to practise the art of surgery without having tested his power of performing ordinary operations. The Army Medical Board have found so many men sent up to them from the College as surgeons quite unable to take off even a finger, that they have superadded a course of surgical operations as an essential condition of candidature. The Navy Medical Examiners take a similar view. We commend this to the notice of the Examiners in Surgery of the College of Physicians. It is, perhaps, a stretch of ordinary calculation to expect that the College of Physicians shall be more rigid in their examination of candidates in Surgery than the College of Surgeons have been, but we think their own interests, as well as those of the profession, will be best consulted by so framing their competition that no slur can be cast on its efficiency, and that no one may be able to say that a Pall-mall Licentiate is only half a surgeon, or in any way inferior to his brother of Lincoln's-inn-fields. It is obvious that if the surgical part of the diploma be not as well reputed as the medical, the diploma will lose great part of its value, and be by so far not worth having. If this licence means anything it must honestly possess exactly the same meaning as that which has hitherto belonged to the diplomas of the College of Surgeons and the Apothecaries' Society; for these are the two diplomas which in practice it will displace. We think the College of Physicians are unwise, then, in that they have fixed the standard of surgical education in any respect lower than that of the College of Surgeons. It is at this point, indeed, that an inherent defect of the new arrangement shows itself.

We have already noted it as a radical fault of this reunion of the parts of Medicine which the College has effected, that it is done by the revival of an old and disused privilege, without the assent of the surgical corporation. The College of Surgeons having unhappily refused to join in conferring this boon on the profession, the College of Physicians has taken the duty on itself; but it enters, of necessity, timidly and very cautiously on these functions, which, by their very antiquity, have all the difficulty of novel duties. They cannot at once assume the task of training thorough surgeons, and yet if they are to persevere in what they are doing, and in the manner in which they are doing it, we shall have to ask no less at their hands. If this licence become so popular amongst the profession as there is reason to anticipate, the effect on the College of Surgeons will be gradually to withdraw so large a number of the candidates for its diploma as altogether to cripple its finances. It is necessary to look forward to the logical consequences of any resolution which may be taken, and the College of Physicians must be aware that this which they have announced contemplates, in fact, the substitution of their own diploma for that of the College of Surgeons in the hands of nineteen-twentieths of those who are to enter the profession. This is a great responsibility. It is doubtful whether the Legislature would have authorized so serious an interference with the functions of the

College of Surgeons. On the other hand, it is not probable that they would consent to revoke the actual privileges of the College of Physicians. Looking to all the bearings of the case, we must still regard a compromise between the two Colleges as a necessary and desirable result; for whatever may have been, or may be, the defects of the government of the corporation of Lincoln's-inn-fields, we cannot contemplate the probable downfall of that important institution with equanimity; nor will the profession do so. But to this end the uncompromising development of the plan now promulgated by the College of Physicians must tend. Meantime one thing is clear: a valid and sufficient licence is offered to those entering the profession in all three branches of the art. This they may be well content to take. A step has been made towards the unification of medical practitioners. This, too, is a gift which we may all gratefully accept from the College of Physicians, and it is one which public opinion will never allow to be revoked or lessened.

IF blue-books, annual reports, and special commissions could tell us all that is worth knowing about public institutions, we might congratulate ourselves both upon the extent and accuracy of the information. These guides to knowledge dazzle us by their statistics, and bewilder us with their details. Every inmate of an asylum, workhouse, and prison, is classified and ticketed like plants in our herbarium, or the minerals upon our shelves. We know as much of their birth, parentage, and education, as the utmost ingenuity can elicit, and can tell more about their antecedents than they are aware of themselves. Nor are we less informed as to the economy of the administration under which they exist. The State opens its ledgers, and Government proves to us within a fraction how much the keeping up and feeding our prisons and asylums cost. The guardians of our charitable funds can say what is the exact expense at which a blind man can make a mat, and how many mats are made and sold within the year. It is easy to learn what it has cost for repairing broken windows destroyed in paroxysms of fury by the female convicts at Millbank, or how much has been expended by the chaplain in the purchase of good books to present to the male prisoners upon the day of their discharge. In fact, so far as relates to what may be termed the "outward life" of our public institutions, we have ample sources of information at command. But of the "inner life"—of the feelings, weaknesses, strength of mind, peculiarities of character, mournings over the past, hopefulness or despair of the future, &c., displayed by those enclosed within them, our knowledge is very scanty. Judging from the reports annually published, one is led to imagine that each public institution is pretty nearly perfect in all its parts. Wheel works within wheel, cog beyond cog, with such accuracy and precision as would force all cogs and wheels, could they speak, to express their utmost delight. The committee or board approves, the secretaries and chaplain are satisfied, visitors admire, the surgeon inspects and even tastes the food, and consequently it is assumed that all others, from the governor or matron to the hall or gate porter, must necessarily be pleased with everything. But those who are not in this charmed circle—those who are rather the wheels and the cogs of the machine than the steam power—would often tell a different tale were it either their place or their policy to speak their minds upon the matter. Why not their place? asks the reader. Because they quickly discover that they are not expected to talk, but to obey. Why not their policy? Because it does not answer to be frequently told not to be "so troublesome."

Of the many public institutions of this country there are none better conducted, as a rule, than our prisons and convict establishments. For all proper purposes, and at proper times, permission can be obtained for their inspection; and a shilling or two will at any time place in the hands of those inquisitive upon the detail of their expenses, management, and general economy, some report or blue-book capable of supplying all that can be desired. As far, indeed, as the prisoners themselves are concerned, matters are so well arranged and made so comfortable as to cause many of those who have once been within our prison walls voluntarily to seek again (by the perpetration of fresh crime) a winter sojourn there, rather than trust themselves to the tender mercies of the union poorhouse. Of course, to many, forced labour, the deprivation of personal liberty, and the endless monotony of the daily routine established within a prison, are most annoying and vexatious. But by others these things are readily put up with for the good diet, warm clothing, and personal comforts enjoyed. So great, in fact, are these known to be in some convict establishments, that there have not been wanting persons who have openly protested against what they have termed the false sentimentality shown towards criminals, and the premiums offered for the committal of crime.

"I don't know what I shall do when my time's up," said an old woman to a prison matron at Millbank; "there's no one to take care of me outside, and I'm afraid they'll treat me very badly at the workhouse. Well, I suppose I must make the best of it. I'll try the workhouse; but I'm thinking it wont suit me like this—not half so comfortable and quiet."

But if there be so much comfort and quiet, such good living and plenty of sleep, as to satisfy a large per-centage of our convicts, it is not exactly the same with regard to those whose immediate duty it is to portion out these comforts to them. But prison matrons and convict warders do not often come before the public with their life's diary. Official over-caution forbids that they should do this, and so we continue to believe the annual reports of directors and governors, the assurances of the chaplains, and the summing-up of the secretaries. According to these, as we have before observed, all is *couleur de rose*. But the ice has been broken through at last by a late prison matron of Millbank and Brixton. She has revealed some of the secrets of the prison-house—and well worth knowing they are too. We can recommend an acquaintanceship with them most honestly.* Amongst much interesting and important matter laid before us is the appeal she makes for certain changes as regards the overwork and diet of the officers, and in respect to some prison rules and discipline. The respectful way in which the "Prison Matron" makes known her grievances must enlist our social reformers in her service. She does not pretend to be a woman with a mission, and affirms that, as a body, the prison matrons have nothing to complain of from directors, governors, chaplains, and lady superintendents. But there are, nevertheless, some things in their duties and surroundings which she maintains cry strongly for change. In the first place the prison matrons are overworked. They are called upon to be at labour *fourteen* hours a day for seven

* Female Life in Prison, by a Prison Matron. In two volumes. London: Hurst and Blackett.

days in the week—the labour of unceasing vigilance, with a mind strung to its highest degree of tension, and with a body that is expected to be ubiquitous. We have said seven days in the week, because Sunday is not a day of rest for prison matrons, save when it is a Sunday's leave of absence. Of the extra duties of removing prisoners to refractory cells—of the extra attention likely to be bestowed upon a matron by a vindictive prisoner in the shape of a pewter pint pot on the back of the head—of the nights when the past day's excitement, like that of the Thane of Cawdor, "murders sleep"—of the sudden rousings by the night officer—we do not here take account. But fourteen hours' work a day continuously of such service as is not like any other service under heaven will be worth the contemplation of the Early Closing Society, without the little trimmings just referred to. And what is the result of such employment?

"I have seen women off duty on the *twelve-hour* nights fling themselves exhausted on their beds, too tired to take advantage of the fresh air outside, which they are at liberty to seek. I have known young women enter full of health and strength, and depart from the service in a few years aged and anxious-looking, with no strength left for any new employment. I have known others die. It is a service that makes its officers old before their time, and undermines their constitutions. It calls for reformation: it must obtain it in good time, if those who have suffered will only honestly speak out."

"A few more matrons on the staff at Millbank and Brixton Prisons would obviate this unnecessary slavery, and not add a costly item to the balance sheet of prison government. I am assured it would be a saving in the end; for some of the best officers in the prison fall ill after four or five years' service; some break up and die, and their places are hard to fill, and time is lost in teaching the new assistants."

If long and anxious hours of labour are a grievance, not less so is that which tends to make those hours more wearisome and unendurable,—namely, a want of proper, and, at times, of wholesome food. Strange to say, that whilst the meat provided for the prisoners is generally of a good quality, that provided for the prison matrons is—by some perverse rule of inconsistency, or some odd principle of cookery—not always good, and at times (not few and far between) "decidedly and disgracefully bad."

"I have no doubt that this plain statement will give rise to many angry denials on the part of those interested in the matter; still it is due to society to state my complaints and to allege my proofs, which stewards, directors, and contractors are quite willing to give the lie to if they can."

The beef is oily, and the mutton so *goatish* that "goat" has become the general appellative for the latter amongst the officers at our Government female prisons. At times the matrons protest. The steward examines the meat; "sees nothing in it;" believes it to be very good meat "considering;" and ends by recommending the ladies of —— ward to be a little less particular. So again the matrons sit down and attempt the banquet. But there is no mistaking the old twang. There it is as predominant as ever; and there is nothing for it but for the officers to substitute suppers of their own, and at their own expense, in lieu of the mess-room dinner. But this costs money, and is not in the bond, moreover. So another feeble remonstrance is made, and the surgeon is appealed to. Well! he cannot see much the matter with the delicacy.

"I even remember one gentleman falling into raptures over a plateful of mutton which had turned half the matrons heart-sick, and wishing that such meat was provided for his own table, that was all!"

So the kind advice to be "less particular" is again attended to, for after all perhaps it *is* only fancy, and the prison air has spoiled the appetites and made the ladies fastidious!

Our limits will not do more than allow of our noticing the changes which the "Prison Matron" recommends as regards prisoners suspected of insanity. She is of opinion that the doubts of a woman's insanity are often carried too far in our Government prisons, and that for a long period before the medical officer is *convinced*, some prisoner may be daily a terrible danger to the matrons, whose lives, and particularly the welfare of the one in charge of her, hang upon a thread. It is this reluctance to pronounce a woman insane—perhaps to risk a professional reputation by too hasty a verdict—that occasionally leads to the committal within our prison walls of things which make one shudder. The "Prison Matron" reasonably enough advises that women *suspected* to be mad by the medical authorities, and *known* to be so by the prison officers, should not be treated like the rest of the prisoners. A separate ward should be provided for them, in which a different management and a special restraint should be exercised. This is not only a fair demand in the interests of the prisoner, but also as respects the personal safety of the officials. Though we are obliged to a "Prison Matron" for much that is only simply amusing, we are her debtors for much that is also instructive and worthy of consideration by those in "great place."

THE new Bye-Laws of the College of Physicians contain many important provisions for the regulation of the College under its new *régime*, which would have attracted considerable attention if they had not been overshadowed by the major importance of the chapter which announces the creation of a medico-chirurgical licence. We will briefly refer to some of them.

An important regulation affecting the Fellows provides that

"The Fellows of the College shall be elected from Members of at least four years' standing, *who have distinguished themselves in the practice of Medicine, or in the pursuit of medical or general science or literature.* All Members who have been either Licentiates or Members during a period of four years on the whole previously to the 1st day of October, 1863, shall be considered Members of four years' standing."

The necessity for medical or scientific distinction was not insisted upon in the former bye-laws, and its introduction now will be observed with general approbation. Then the privileges of country Fellows are enlarged by a provision that

"Every Fellow of the College resident in the United Kingdom shall be summoned to all general meetings of the Fellows, whether ordinary or extraordinary, except in the case of any Fellow who shall have requested, by letter, addressed to the Registrar, that summonses shall not be sent to him."

The annual election of the President is provided for, as required by the Statute 23 & 24 Vict., c. 66, s. 6. It will occur to everyone, however, that the annual election of the President does not of necessity involve the annual change of the President; and it will be proper for the Fellows to consider whether it will not materially add to the dignity and efficiency of the office, if they resolve to reserve that office for physicians of the highest standing and deserts, leaving it in the hands of its possessor for some four or five years—long enough to mark the

honour as one of weight, and to insure a certain consistency and experienced care in the exercise of the influence of this high functionary.

By the bye-laws relating to the Council, they have imposed upon them the duty of electing Examiners; and among them, Examiners in Surgery, Anatomy, and Physiology. It is open to the Council, by the judicious wording of these bye-laws, to elect other persons than Fellows of the College to those offices. There are undoubtedly among the Fellows of the College of Physicians men, especially army medical officers, whose surgical attainments command respect; but we doubt whether the Fellows will not best consult their own interests by looking beyond their body in this matter, and selecting men of undeniably high public reputation as surgeons and anatomists. Members of the Council of the College of Surgeons would of course be precluded by their position from occupying such appointment; but there are others, such as Mr. ERICHSEN and Mr. HANCOCK, who might not be so biassed, and whose names would bring confidence.

The Members of the College will alone be eligible for the Fellowship. Licentiates before February 16th, 1859, will be entitled to the Membership by obedience to the bye-laws. A candidate of the age of forty years may be admitted to examination by special grace, by vote of the Fellows, if he shall produce to the Censors "testimonials, not merely satisfactory as to his moral character and conduct, and his general and professional acquirements, but further showing that "he has improved the art or extended the science of Medicine, "or has at least distinguished himself highly as a medical "practitioner."

A special provision is made for the settlement of the question of medical titles among those who owe allegiance to this College. It runs thus:—

"No Fellow, Member, or Licentiate of this College shall assume the title of Doctor of Medicine, or use any other name, title, designation, or distinction implying that he is a Graduate in Medicine of a University, unless he be a Graduate in Medicine of a University."

No Fellow of the College is entitled to sue for professional aid rendered by him. This does not extend to Members. The Fellows and Members are not allowed to engage in trade, or to practise Medicine or Surgery in partnership.

It will be seen that the general tone of these regulations is liberal and intelligent, and altogether worthy of the dignified and high-principled body from which they issue.

Medical Annotations.

"Ne quid nimis."

THE RIVALS.

ON the evening which closed the *séance* of the British Medical Association in London, the three representatives respectively of the Colleges of Physicians and Surgeons and of Apothecaries' Hall were brought face to face, and, under the veil of thanks for good wishes offered to their several corporations, pleaded the cause of their Societies. The difference of tone was very strongly marked. The senior Censor of the College of Physicians was jubilant and democratic. His speech might have served as a leading article for this journal; for he uttered the language so often used, and echoed the principles so long advocated in these columns. Speaking in the same spirit which had marked the words of Dr. Barrows in his inaugural discourse, Dr. Budd deplored the past errors which had made the College representative only of a class, and confined its influence within a narrow circle. Frankly affirming the irresistible force in this day of public opinion, Dr. Budd looked hopefully forward to the future; and believing that the College had now placed itself in accord with that powerful influence, he anticipated a day when the College shall have spread its members over all the country, and become for them a professional home in London. The speeches of the Presidents of the College of Surgeons and of the Apothecaries' Society were mainly retrospective. Mr. Ansell, indeed, spoke manfully, although somewhat despairingly; and looking back upon the vast improvements in education which have taken place since 1815, attributed them to the influence of his Company, declaring that when the time came for them to perish they would die in the same faith, and would fade away uttering beautiful and improving sentiments in harmony with the present march of intellect, which was last week so often pointed out, threatens them with annihilation. It must be hard for these gentlemen to feel that they have gone on refining the profession until the profession has become so refined that it is ashamed of its old preceptors, and will have none of them. It is the case of the old shopkeeper, whose highly educated and fashionable offspring abhor the name of the shop. "It is, I repeat," said the Chairman, "but the natural consequence of the successful efforts of that Society in raising the education of its licentiates that a higher tone of feeling should have been reacted amongst them, and that many of those gentlemen should be animated with the desire of obtaining an acknowledged professional status different from that which was formerly held by the apothecary in this country." The President of the Apothecaries' Society was loudly cheered when he resolutely looked this state of things in the face, and avowed his readiness to meet his fate with a gay heart and a clear conscience. The able and distinguished President of the College of Surgeons felt compelled to limit his address to a cautious retrospect. Touching on the noble Museum of Hunter, which the College has treasured and enlarged with munificent liberality, he played his trump card at once, and there was little left in his hand. He could make no promises, nor did he deem it politic to offer excuses or justification in respect to the statement in Dr. Burrows' opening address, questioning whether "the constitution and policy of the governing body of the College have been such as to conciliate the feelings of, and maintain a wholesome moral influence on, the members of the corporation," and observing that "the recent deplorable disregard which the College of Surgeons has manifested for the regulations of the General Medical Council, respecting the best method of conducting the education of students entering the profession, has again placed that College in a false position." With regard to these charges, Mr. Luke preserved a judicious silence; and while referring to the Museum and to the general educational efforts of the College in the past as subjects of deserved congratulation and as claims to the confidence of the profession—which indeed we feel them to be,—he could make no sign which would promise justification or amendment in the future. Nevertheless, Mr. Luke must have felt that when a person, holding high official position in the College of Physicians and the Medical Council, could from his chair, as President of a large assemblage, of whom the majority held the surgical diploma, denounce the conduct of the College of Surgeons amid general cheering, and declare its constituted policy to be unsatisfactory, and its moral influence to be declining, then was the time for him, standing up in his capacity of President of that College, to rebut those charges, and to reinstate his corporation in the affections of its members. We regret that he was unable to do so. But Mr. Luke is a man too wise and too conciliatory not to feel that there exists a necessity for putting the government of the College in harmony with the feelings of its members and the wants of the

profession. What are these wants? We have no difficulty or hesitation in defining them. They are, firstly, a union with the College of Physicians in respect to the joint diploma in Medicine and Surgery, which the latter have decided to give; secondly, the reconstruction of the Council on a popular and intelligible footing; thirdly, the selection of the President and Examiners from a wider constituency than that to which these offices have been hitherto confined; fourthly, the abolition of life appointments; and, fifthly, the quinquennial election of Examiners.

THE DRUGGISTS' FRANCHISE.

AN important encouragement has been given by a recent Act of Parliament to that educational organization of the druggists and dispensing chemists which we hold to be a measure that should be made universal. At one time the body of chemists were entirely without organization, and any little chandler-shopkeeper who chose to add drugs to his stock of tapes and dry-goods stood in the same position as the accomplished and practised gentlemen who had duly educated themselves for the responsible task of following the therapeutical indications of physicians and dispensing drugs to the public. For some people this system of free trade in poisons has still many charms, and they would remorselessly leave the lives of the community in the hands of uneducated vendors of poison such as that woman who sold pulv. opii Turc. for pulv. rhei Turc., under the impression that one kind of Turkey powder must be much the same as another, and as she was out of the "rhei," she might send the "opii," which she did, thereby killing her customer. We confess that we have no sympathy with the kind of vested interest in poisoning which is claimed for dispensers of drugs of this class. We look forward to the time when the interests of life will not be thus trifled with. In no country of Europe but in England is the fanciful respect for inherent trade rights carried to the absurd extent of permitting any ignorant fellow who pleases to start a shop for the sale of poisons and the dispensing of drugs, and, without the shadow of education, or with any false measure of information which his conceit may lead him to think sufficient, then and there to practise medicine over the counter, and to dabble in death dealing substances. There are two classes: the pharmaceutical chemists, who submit to such an examination as guarantees their capacity for dispensing and preparing medicinal substances; and the outsiders, who have given no evidence of that qualification. Amongst the latter there are a number of very competent persons, but it is very well known that there are many of them who are totally and dangerously ignorant of the nicetie of the difficult art which they practise: they include a kind of rabble of chandler-shopkeepers, stationers, perfumers, and others. When recently the Juries Bill was before Parliament, a clause was introduced by Mr. Powell exempting the pharmaceutical chemists—that is, chemists who are members of the Pharmaceutical Society—from serving on juries. This clause was rejected by the House of Commons; but by the wise persistence of the House of Lords it has found a place in the Act as passed. The pharmaceutical chemists were able to obtain this exemption by proving that they are a body which can be defined by educational examination and registration; that their business is of a most responsible nature; and that it is most difficult and dangerous for the principal to leave his business, more particularly where there are only apprentices, or where the establishment consists of the proprietor only, in which case, when he is summoned, the shop or dispensary is usually left to the wife (if he have one), or to porter or errand-boy. The awful announcement of the juryman in the celebrated case of Bardell *v.* Pickwick was an efficient argument for the cause which Lord Wensleydale pleaded with irresistible force. That chemist observed that he had "left nobody but an errand-boy in his shop. He is a very nice boy, my lord, but he is not acquainted with drugs; and I know that the prevailing impression on his mind is, that Epsom salts means oxalic acid; and syrup of senna, laudanum. That's all, my lord." The encouragement offered to the important educational efforts of the Pharmaceutical Society by this measure is very considerable, and we trust that it may have the effect of widening the influence of that Society, and raising the educational standard amongst druggists.

THE APPRENTICESHIP QUESTION.

THE answers to the circular letter addressed by the Council of the College of Surgeons to so many of its Fellows will be facilitated by the statement in these columns of the reasons which seem chiefly to have influenced the Medical Council in passing their now celebrated resolution—the declining to recognise the time spent in apprenticeship as any portion of the curriculum of education incumbent upon the medical student. The objections were of a twofold nature. In the first place, it was argued that the period of apprenticeship was for the most part spent in performing the functions of a shop and errand boy, at a time when it is especially important that he should be acquiring general knowledge and learning the alphabet of medical science; and, in the second place, it was contended that by suffering the student to see and prescribe for patients before he knows anything of the nature of disease and the laws of treatment, is to take the most efficient means of impressing upon him a habit of rule of thumb and an empirical mode of practice. Thus the system of apprenticeship was condemned as filling up with physical drudgery an important period in the student's career, when his mind is most open to and most needs cultivation, and as calling upon him to grasp at medical practice before any of the elementary facts and principles which are the proper guides thereto have been put into his possession. These serious objections must be admitted to have weight, and deserve consideration before the ably-written circular of the Council of the College of Surgeons is answered in the way in which it is evidently intended to be answered. The impolicy of the Medical Council in refusing to admit reporters to their sittings must on this occasion be very evident to the minds of its members. The College of Surgeons, in defying the regulations of the Medical Council, are able to take advantage of the general ignorance in which the profession are left as regards the grounds on which those regulations were framed. In the present appeal to their Fellows, they state with great ability all that can be said or suggested in favour of apprenticeship—a system which is still further recommended to many by the profits which accrue to them from it. On the other hand, the profession are wholly ignorant of the arguments which have decided the question in an opposite sense in the Medical Council; and, finally, it becomes our duty to assist the Medical Council by making that statement of reasons which in the first instance they refused to make known, but on which the ultimate decision will rest. All questions affecting in an important degree the interests of the profession must finally be determined by public opinion. The attempt to carry them with a high hand one way or the other, without reference to that opinion, must fail in effect. If the Council are wise, they will willingly test the course of opinion as they go, by publishing the speeches and arguments which can explain the reason and objects of the measures which they adopt. It is in the refusal of the Council hitherto to do this that their present weakness lies. The College of Surgeons appeal against the General Council to public opinion; and they have the great advantage of finding their constituents uninformed as to the course of the discussion, and therefore especially open to the force of the arguments set forth in that appeal. We have already expressed what is, we believe, the general conviction, that the College of Surgeons have acted improperly in defying the General Council. But setting this aside—and it forms no part of the general merits of the appeal,—if public opinion decide the question on its merits in favour

of the College of Surgeons, the General Council will have to yield the point ultimately. In any case, the General Council have reason to regret not having admitted reporters, so that the arguments which prevailed to recommend their resolution were not known to the medical profession.

COMING CONGRESSES.

THOSE who have not had enough of congresses and associations which have so swarmed this year, are reminded that there are yet two impending meetings, which are arranged to occupy the vacation of those who find a mild holiday in a visit to a pleasant and hospitable city with interludes of scientific discourse. For these grave holiday-makers there are still in store the meeting of the British Association at Cambridge in October, and the first annual meeting of the International Association for the Promotion of Social Science, which is just appointed to be held at Brussels, Sept. 22nd to the 25th. The Association has been framed on the model of that which recently held its annual congress in London, and will, no doubt, be successful; although many will think that its inauguration had better have been postponed till next year, since about September the reaction of exhaustion may be expected to have fully set in. The visit to Brussels is, however, in itself a most agreeable incident, and if the authorities show anything like the magnificent hospitality with which they received the British guests on the occasion of the artistic *soirée* last year, the visitors will have much cause for congratulation. In the fourth section, Charity and Public Health, the following questions are set down in the programme:—1. Does not the improper and insufficient diet of the working classes contribute to the increase of pulmonary consumption?—remedies for this evil. 2. Drainage as a sanitary measure, particularly amongst dense populations—can it altogether extirpate endemic diseases? 3. Scrofulousness of children in foundling and orphan hospitals—ought not country and maritime situations, which are less subject to scrofula, to be selected for such establishments? should not general orphan hospitals be founded on the plan of the reformatory schools at Beernem and Ruysseleede? 4. Danger in consanguineous marriages—should the legislative prohibitions of them be extended?

SMALL-POX AMONGST SHEEP.

IN the year 1847 the disease of small-pox was introduced for the first time in England amongst sheep, by some of the Merino breed, which were sold at Smithfield. The disease made some little way at Datchet and at Pinner, and afterwards in Dorset and Hampshire. It was ultimately eradicated, and from that time to the present there has been no known example of the existence of small-pox among the sheep of this country. At Allington, in Hampshire, about six weeks since, a disease of a most virulent character appeared among the flocks of Mr. Parry, and spread with fearful rapidity. The first symptoms of the disease were, a staggering gait, slight fever, and swollen eyelids; red spots subsequently appeared over the whole body; these assumed the character of the pustules of ordinary small-pox, followed by malignant ulceration, which emitted a thin offensive matter. The mortality was truly frightful. Diligent inquiry failed to elicit the cause of the outbreak; it was found impossible to trace it to contagion. No one in the locality had ever witnessed a disease of this type, and Mr. Parry, in his dilemma, applied to Professor Simonds, of the Royal Veterinary College. This gentleman immediately pronounced the disease to be small-pox, and, with his accustomed energy, set to work to arrest its ravages. On Saturday last he completed his inoculation of the lambs, originally 700 in number, having a few days previously inoculated the ewes, which amounted, at the time the disease showed itself, to 1000. We are happy to say that the mortality is already much upon the decrease, and we shall look forward with great interest to the ultimate comparative results of the natural and inoculated disease among the animals. This cannot be accurately known for two or three weeks. The subject is one of extreme importance, not only to the owners of sheep, but to the public in general.

MEDICAL RESPONSIBILITY.

How shall surgeons deal with a patient raving in the dangerous delirium of drink? At all our hospitals such a patient is managed by gentle coercion, or placed under supervision in a padded room, *nolens volens*, until time and treatment shall have restored his self-control. The recent decision, Scott *v.* Wakem, seems to affirm that a surgeon called by the nearest relative has no right to assume the management of the delirious sufferer from drunken madness, and that he is liable to an action at law if he use restraint to control his dangerous impulses. On the other hand, what would be said if, in future, surgeons should decline to undertake the responsibility of treating patients suffering from delirium tremens If the jury in this case correctly interpreted the law, we commend this state of legal doctrine to the attention of the House of Lords, who recently manifested so lively an interest in law and lunacy. This subject will command attention in the profession, and receive further careful consideration on our part.

A NEW LOCK HOSPITAL.

AMONG the most recent and important questions which have occupied the professional mind are those difficult problems yet unsolved which relate to the manner and extent of development attained by the syphilitic poison, when hereditarily or in other ways conveyed to third persons, who suffer as severely from the effects of the poison as those in whom it is a seal of moral delinquency. The very nature and symptoms of truly infecting venereal disease, whether in its primary or secondary forms, were wholly misunderstood at the commencement of the present century; and although now, by the investigations of Hunter, Ricord, Lane, Lee, De Méric, and their numerous fellow-workers among hospital surgeons, great things indeed have been done to mitigate the force and to relieve the horrors of this pest, yet the questions still unsolved are among the most important in medical science, and the recent admission of the transmissibility of secondary symptoms seems urgently to call for fresh therapeutical studies. No population in the world suffers, we believe, more extensively from venereal disease than that of London, and in none is the accommodation for persons thus afflicted so scanty, or the means of systematic study so deficient.

The new Male Lock Hospital just opened in Dean-street, Soho, will supply an important help in this respect. It will be a centre for relief much needed by those afflicted with this disease, and will thus help to keep at bay a great cause of the degeneration of the people. It will be a school in which science may gather fresh data for the good of humanity; one accessible to students, and capable of rendering great services to medical instruction. This institution has been long contemplated, and for its establishment now we are indebted in the first place to the unwearied efforts and well-directed influence of the Hon. A. Kinnaird, M.P., seconded by the exertions of Mr. Irving Hare, the indefatigable honorary secretary of the hospital. The new male hospital will contain thirty beds. The surgeons in charge of out-patients at this institution are Mr. G. G. Gascoyen and Mr. Walter Coulson; in charge of in-patients, both here and at the Paddington Hospital and Asylum for Female In-Patients, Mr. Henry Lee and Mr. James Lane. It will be noticed as an evidence of intelligent liberality that the distinction of surgeons and assistant surgeons has been abolished here. We hope to see this measure become universal: we have little doubt that it will be in the end; and those institutions which first put themselves on a par in this respect with St. Mary's, the Lock, and other hospitals, will have the advantage of being leaders instead of followers in the movement.

Thirtieth Annual Meeting

OF THE

BRITISH MEDICAL ASSOCIATION,

HELD AT THE

ROYAL COLLEGE OF PHYSICIANS OF LONDON,

On Tuesday, August 5th; Wednesday, August 6th; Thursday, August 7th; and Friday, August 8th, 1862.

FRIDAY, AUGUST 8TH.

Dr. BENNETT presented the report of a committee giving the result of its deliberations as to the therapeutic action of medicines; which was unanimously adopted.

ON THE TREATMENT OF PNEUMONIA: WITH THE RESULTS OF 105 CAREFULLY RECORDED CASES.

BY J. HUGHES BENNETT, M.D., EDINBURGH.

By pneumonia, or inflammation of the lung, the author understood a disorder essentially composed of an exudation from the blood among the elementary textures and into the air-vesicles of that organ, which gives rise to those well-known physical signs and functional symptoms with which all are familiar. This, like most other inflammations, when acute, was formerly treated by so-called antiphlogistics,—that is to say, bloodletting, purgatives, antimonials, low diet, and other methods of lowering the strength of the patient. It was about eighteen years ago, in consequence of investigating the pathology of inflammation, that Dr. Bennett began to doubt the propriety of such a treatment, and this for the following reasons:—

In the first place, the cause of the inflammation is an irritation of the textures, of the ultimate molecules, of the part; in consequence of which their vital power of selection is destroyed and that of their attraction is increased. The removal of blood by venesection cannot alter this state of matters, neither can other lowering remedies. If the inflammation be superficial and limited, local bleeding may diminish the congestion, as in conjunctivitis; but if exudation has occurred, it cannot remove that.

In the second place, an exudation or true inflammation having occurred, it can only be absorbed by undergoing cell-transformation. Now this demands vital force or strength, and is arrested by weakness. Inflammations in healthy men rapidly go through their natural progress. In weak persons they are delayed or arrested: hence their fatality.

In the third place, the strong pulse, fever, and increased flow of blood in the neighbourhood of inflamed parts, have been wrongly interpreted by practitioners. They are the results, and not the causes, of inflammation; and show that the economy is actively at work repairing the injury. So far, therefore, from being interfered with and interrupted, they should be supported by nutrients.

It follows, fourthly, that if these views be correct, the true treatment of inflammation should be directed towards bringing the disease to a favourable conclusion by supporting, rather than by diminishing, the vital strength of the economy; and this, not by over-stimulation, as was done by Dr. Todd, but simply by attending to all those circumstances which restore the nutritive processes to a healthy condition.

Having been guided by these views in his practice for the last fourteen years, and having seen that they have been gradually adopted by the profession, Dr. Bennett offered the most convincing proof of their correctness from an analysis of 105 cases of pneumonia publicly treated in his clinical wards in the Royal Infirmary of Edinburgh, and carefully recorded by his various clinical clerks. In all these cases the treatment was directed to the support of the economy, never to weaken it by antiphlogistics. At the same time, if dyspnœa be urgent, cupping or a small bleeding (from four to eight ounces) may be practised as a palliative, more especially in bronchial or cardiac complication,—although in none of these cases was such bleeding ever found necessary by him. During the febrile excitement mild salines are administered. On the fourth or fifth days, when the fever abates, good beef-tea and nutrients are administered; and on the pulse becoming soft or weak, from four to eight ounces of wine daily. As the period of crisis approaches, slight diuretics are given to favour the excretory process. The results are—

Single uncomplicated cases,	58	Average duration,	13¼ days
Double " "	19	" "	20 "
Complicated cases	17	" "	15½ "
Unsatisfactory cases (as to duration)	8		
Deaths	3		
	105		

Ratio of deaths, 1 in 35 cases.

Average residence in the hospital of 77 uncomplicated cases of pneumonia (single and double), 22½ days.

It has been supposed that in consequence of this comparatively small number of cases occurring in so long a period as fourteen years the disease is rare in Edinburgh. It should therefore be explained that the clinical professors are on duty alternately, and that he (Dr. Bennett) had never acted as physician to the Infirmary more than one-half of the year, and in most cases only one-third of the year. It has also been imagined that pneumonia in Edinburgh is unusually slight and trivial, or that the disease in these cases was not extensive. But it is not so. Many cases, and especially the double ones, were very severe, with great dyspnœa and very urgent symptoms. Dr. Bennett had frequently pointed out the existence in these cases of the hard and strong pulse in vigorous young men, in whom, however, the most rapid recoveries were invariably observed. It should also be noted that these cases were in no way selected, but included not a few which were admitted *in extremis* by the resident clerk, and never seen by the physician; nor such as were partly treated by other physicians in the hospital, and for which treatment Dr. Bennett was not responsible.

From these facts Dr. Bennett concluded:—

1. That simple pneumonia, if treated so as to support, instead of lower, the nutritive processes, so far from being a fatal disease, almost invariably recovers.

2. That the cause of mortality in these cases is exhaustion, either before they come under medical supervision, or, as formerly practised, by a lowering treatment. Bleedings or other remedies that do not exhaust must be regarded as palliative rather than curative, and their influence has yet to be determined with exactitude.

3. That the same rule applies to all inflammations, the amount of danger being in direct ratio to the weakness of the system; the existence of complications in other viscera, or blood poisoning.

Dr. Bennett was of opinion that these important results were not the effect of chance; of empirical experiment; of a change in the nature of inflammation, or of the force of the pulse in man and animals; of an alteration of diet or of drink, or of nervous susceptibility; nor of a change of type in disease: all of which have been supposed by some explanatory of facts which can no longer be denied. The more he considered this subject, the more was he convinced that it could only be justly attributed to the advance of medical science, and that it was a source of infinite satisfaction for medical men so to consider it. He thought it strange that some minds would rather ascribe so manifest an improvement in the treatment of disease to hypothetical revolutions in nature which had no proof in their support, than to the increase of knowledge amongst the profession which was obvious to all. It seemed to him that if any one demanded in what way our advance in physiology and pathology had benefited the treatment of disease, no better proof of it could be found than in the diminished mortality that everywhere now accompanied attacks of acute inflammation.

Dr. ROUTH said he had given a great deal of attention to the subject of pneumonia, having watched its treatment abroad, in London, and elsewhere; and it appeared to him upon the face of the table, if it was accurate in all its details (as he had no doubt Dr. Bennett believed), every one who had treated the disease must give the palm to Dr. Bennett. Certainly, there could not be found throughout the whole of Europe any sta-

tistics which could bear comparison with those he had brought forward. But he was inclined to take exception to one or two points, which Dr. Bennett might perhaps be able to explain. The average age of the patients was said to be 31¾. He believed it was an admitted fact, that many a case of pneumonia occurring in healthy persons, or in persons not particularly unhealthy, would get well under the age of forty and above twenty, whatever treatment might be adopted. Then, again, the mortality was much greater in females than males, but Dr. Bennett had not adverted to that point. He had noticed that one of the tricks practised by homœopathists in the treatment of pneumonia was the selection of men and the omission of women. He did not imagine for a moment that Dr. Bennett had pursued any such course, but it would be satisfactory to know the proportion of the sexes in the cases he had recorded. In the comparison of statistics there was an error into which they were liable to fall, namely, the grouping of the cases. He observed a certain number of cases said to be single and uncomplicated, and that was by far the greater number—58 out of 105. Taking this into consideration, together with the fact that the patients were probably under forty, one would necessarily expect the mortality to be small. If in the comparison it was found that the per-centage of bad cases, where both lungs were implicated, was in favour of Dr. Bennett, that would be an incontrovertible argument to prove that he was right; but it might also turn out that the per-centage was less. It would be well if Dr. Bennett explained, in regard to the single uncomplicated cases, the exact amount of lung that was affected. If only a small part was affected, such cases would go on almost as well without as with medicine, and unless they were closely examined they were often quite overlooked.

Dr. FARR said that, as Dr. Bennett's cases were admitted into the infirmary, and open to criticism, it must be supposed that they were really cases of pneumonia. He should be glad to know whether they were all the cases that had come under his notice, or merely a selection; also whether he followed the 105 cases to their termination, through secondary disease and any other complaints that might follow; whether he was sure that the 102 cases were absolute cases of recovery; and whether he had any information as to the period of the disease when the treatment was commenced. It would no doubt create a revolution in medicine if such results were confirmed by further inquiry. The great majority of deaths from pneumonia took place in children and very old persons, and the mortality increased about a third for every ten years of age.

Dr. WEBSTER asked whether the cases were selected from clinical wards or indiscriminately from those that came to the infirmary?

Dr. KIDD spoke in favour of the treatment pursued by Dr. Bennett, and said he had observed the like results from a similar mode of treatment employed in London.

Dr. CAMPS said he was not surprised at the results brought forward by Dr. Bennett. He was convinced that uncomplicated pneumonia, occurring at almost any age between twenty and fifty or sixty, was not necessarily fatal, but would get well under almost any treatment. The results of Dr. Bennett's practice were so marvellous, that if these statements were not brought forward on such good authority, it would be concluded that they were not cases of pneumonia at all. He congratulated the profession on the results, and believed that, if a similar plan were adopted, in many cases there would be a diminished mortality, not simply in pneumonia, but in diseases generally.

Dr. WATERS said he wished to say a word in approval of Dr. Bennett's mode of practice. He was connected with a hospital which received within its walls a large proportion of cases of acute disease. It used to be an axiom in medicine that wherever a patient was previously in health, and was attacked with acute pneumonia, he would benefit by an abstraction of blood. The cases that came under his notice were those of sailors who were struck down constantly with acute disease apparently without any previous predisposition to it—strong, healthy men, who were brought into the hospital within two or three days after the attack. In those cases he did not extract a single drop of blood, and he found that they recovered satisfactorily and rapidly upon the treatment advocated by Dr. Bennett. He believed that such cases were typical of those in which extensive bleeding was formerly supposed to be necessary.

A MEMBER OF THE ASSOCIATION said he had employed large doses of belladonna in the treatment of pneumonia, following the example of Professor Graves of Dublin, and asked Dr. Bennett if he had any experience in that method of treatment.

Dr. BENNETT, in reply, said that the cases were taken in the public wards of the infirmary, and were carefully recorded day by day, not by himself, but by clinical clerks. The mode in clinical instruction was carried out in Edinburgh would would satisfy the members that every one of the cases was most carefully examined. Each case was first examined by the clerk, and the facts were written down. The professor afterwards re-examined the case in all its bearings, and if the previous record was found to be in any respect incorrect, it was at once rectified. A careful record was afterwards kept day by day until the case was completed and dismissed. All the circumstances to which Dr. Routh had alluded were to be found in the records of the hospital, and would be given to the public with his (Dr. Bennett's) paper. It was true the average age of the patients was 31¾, but, speaking from recollection, he had no doubt that many of the patients were of advanced age. The cases were not intended to be compared by him with other systems of treatment, but with the antiphlogistic method of the past, such as that employed by Louis and all other hospital physicians about twenty years ago. Many of the cases were very severe, a great portion of the lung being involved. There had been no selection of the cases by him, but they included all admitted into the hospital except such as were admitted late at night, and, dying before the arrival of the physician, did not come under his observation. There might be half a dozen such cases swelling the mortality of the hospital, but they were evidently removed from the question of treatment, because they had never been treated at all, the patients being admitted *in articulo mortis*. The periods of the disease when the treatment was commenced had been various. The sooner, however, the case came under treatment, the more rapid was the recovery. The results of his labours in private had been the same as of those in public. He had no experience of the use of belladonna in pneumonia.

ON GLAUCOMATOUS AFFECTIONS, AND THEIR TREATMENT BY IRIDECTOMY.

BY W. BOWMAN, ESQ., F.R.S.

The author, after eloquently calling attention to the vast revolution which had been worked in the diagnosis and treatment of diseases of the eye since the invention of the ophthalmoscope by Helmholtz, passed on to the consideration of the treatment of Glaucoma by Iridectomy. He most warmly eulogized Von Graefe for having discovered a cure for a disease which but six or seven years ago was deemed by all incurable, and for having enriched the literature of the profession by his admirable papers on Glaucoma, &c. Mr. Bowman then proceeded to give a masterly *exposé* of the different symptoms of glaucoma in its various stages—viz., the premonitory, acute, subacute, and chronic; and laid particular stress upon the increase of tension or hardness of the eyeball—a symptom which he considers of paramount importance in all intraocular affections, and one which demands close and anxious watching. He also pointed out the fact noticed by Von Graefe, that a glaucomatous condition of the eye may supervene upon other affections of the eye, or after operations for cataract: the treatment required in such cases is an early iridectomy. He strongly urged the necessity of all medical men making themselves conversant with the various symptoms of glaucoma, in order that by a timely iridectomy eyes might be saved which were now irretrievably lost from the fact that the time had passed by when an iridectomy would have produced any improvement of sight. How often had we not to pass the melancholy verdict—"Too late! had you but applied sooner your eyesight might have been saved." Mr. Bowman vindicated the efficacy of iridectomy as a cure for glaucoma, having himself had many brilliant results of this operation. In conclusion, he explained the method of performing the different steps of the operation, the place of incision, &c.

Dr. RICHARDSON said he had been of late trying to work out the synthesis of glaucoma in the same way as the synthesis of cataract, by the increase of the specific gravity of the blood. He should be glad to know if Mr. Bowman could tell, with absolute precision, what was the source of the fluid that produced the tension, and the nature of it—the source from which it was derived, and in what part of the eyeball the tension existed; also if he could explain physiologically the action of iridectomy. He had seen cases with such extraordinary results, that it was difficult to know how the operation really

acted. He believed Mr. Bowman had somewhat under-estimated the blood conditions leading to glaucoma. It was not necessary to consider that there was a gouty or rheumatic or superfibrinized state of the blood, but a change simply in the specific gravity of the blood. By reducing the specific gravity of the blood, conditions were produced analogous to those occurring in glaucoma; so that, as cataract often depended upon an increase of specific gravity, the opposite effect might be produced by the opposite condition of the blood. He should be glad to know if Mr. Bowman had ever seen glaucoma in diabetes; for, therapeutically, the two diseases seemed incompatible.

Mr. WELLS said he had seen the operation performed by its originator, Von Graefe, and could endorse all that Mr. Bowman had said respecting it. The reasons why it had not been successful in some cases were, that they had not been properly diagnosed, that the operation was not performed sufficiently early, or that the mode of operation was not what it should have been—the incision not being made through the sclerotic.

Mr. BOWMAN said he came as a practitioner to speak to practitioners, and had therefore avoided going into anything like abstract or physiological reasoning. In one case he had seen the connexion referred to by Dr. Richardson; but in that case there was a large amount of sugar, and the specific gravity was not higher than 1025. It was a case of chronic glaucoma; the sight of one eye was entirely gone, and but little remained in the other. He performed the operation of iridectomy, and nothing could be more satisfactory than the recovery of the patient. With regard to the blood conditions, there might be varied morbid conditions of the blood not marked by albuminuria, or by anything gouty, rheumatic, or diabetic in the system. There was much more to be discovered on the subject by future observers, and there might be states of blood found to be intimately connected with glaucoma; but he thought the symptoms were rather referable to a local condition of the bloodvessels and the nervous coats of the bloodvessels in the eye. With regard to the *rationale* of the operation, he followed his friend Von Graefe. He at first thought that the result was produced by opening a freer communication between the back and front of the iris, thus allowing the fluids from behind to percolate more easily into the aqueous humour. He was not prepared to agree with Von Graefe's early supposition, that it might depend upon the removal of a portion of the iris, the iris being considered as the secreting agent of the aqueous humour, and that thus there might be a diminished secretion of the aqueous humour in the eye; he did not think it depended upon the quantity of iris removed, but upon the exactitude with which the marginal part of the iris was turned away from the ciliary bodies. With regard to the cause of the tension, he believed that in chronic cases it was an enlargement of the vitreous chamber of the eye, and in many cases a partial consolidation of the substance of the vitreous humour, not necessarily connected with any serum or fibrous or cloudy flocculi.

ADDRESS IN PHYSIOLOGY.

BY W. SHARPEY, M.D., F.R.S.

Mr. President and Gentlemen,—Having undertaken the honourable but anxious task of delivering an address in Physiology to this important assembly of the medical profession, I thought it would best suit the occasion were I to pass in review some of the leading features and incidents which have marked the progress of the science during the time this Association has flourished—a period most eventful in the history of modern physiology. The last quarter of a century, however, has been so prolific in scientific inquiry, and so fruitful in discovery, that it would be futile in me to attempt anything in the nature of a connected history or systematic exposition of the subject before us, and I can only endeavour, out of the wide range of topics which present themselves, to select such as may seem best adapted to characterize the scope and aspect of recent physiology, and more especially to illustrate improvements in method, extension of acquired knowledge, and revolutions in doctrine. I could have wished to present a view of these subjects in special relation to medicine; but this I must leave to a future occasion, and to some more able expositor.

In contemplating the operations of the animal economy, the mind is naturally first drawn to the evidence everywhere manifest of purpose and contrivance, of ends to be compassed and means provided for their fulfilment. It is accordingly no wonder that ever since the time of Galen's famous treatise, "De Usu Partium," the uses or functions of the organs of the animal frame should have formed a main subject for study and reflection, and, as you well know, it is a part of physiological study by no means yet exhausted. But intelligent inquirers soon also took up the investigation of the processes of the animal system with a view to their rational explanation. Phenomena were scrutinized as to the conditions of their occurrence, their succession, and mutual dependence; they were referred to the operation of certain general properties and peculiar forces recognised as belonging to the living body, and efforts were made to find out general laws to which the individual facts might be subordinated. These labours have been crowned with no small measure of success, and, thanks to the advanced state and happy application of the collateral sciences, many phenomena of a purely physical and chemical nature have been satisfactorily referred to their true causes. If problems yet remain—and there are many such—which have baffled all attempts at physical explanation, it must at least be counted as no small gain that we no longer seek their solution in the agency of imaginary entities, clothed with mystical attributes, like the "Archæus" of Van Helmont, the "Anima" of Stahl, and the vital principle of later theorists, nor vainly strive to square them to the dogmas of some dominant vito-chemical, or dynamical system.

During the period which we propose to keep in view, physiology has undoubtedly advanced with accelerated pace, and amongst the causes of this advancement a foremost place must be assigned to the increased number and activity of its cultivators. This is to be ascribed, I believe, in some considerable measure to the establishment of schools of practical physiology in various parts of Europe. Opportunities for the practical pursuit of anatomy have long been deemed an indispensable requisite for that study. Chemical laboratories, where young men are trained to chemical research, have powerfully contributed to promote the science of chemistry. To these are now added in various schools on the Continent—especially in Germany and Holland—physiological laboratories, in which opportunities are offered for the practical study of structural anatomy, physiological chemistry, and experimental physiology. In these establishments encouragement is given and facilities are afforded for original research, and all the requisite arrangements, with the best instrumental appliances, are provided for that purpose. Accordingly many valuable physiological memoirs have emanated from the practical schools of Berlin, Würzburg, Utrecht, and elsewhere, and accomplished young professors and assistants have been supplied to the various German universities, there to carry on their independent researches. The practical schools of chemistry in this country have taken an honourable place in the advancement of their science. Physiology, it is true, holds out no material rewards to her votaries. Let us hope, nevertheless, that there will not be wanting young and ardent aspirants in adequate numbers, who, through devotion to science and a desire of honourable distinction, may place modern British physiology in the same worthy position.

Much may reasonably be expected from the position which physiology has now taken as a branch of general education. For more than twenty years physiology has, to a certain extent, entered into the examinations for degrees in Arts of the University of London, and is now carried to a much higher pitch in the Science Degree recently instituted by that body, and already shewing promise of great good. The older Universities have followed in the same line, and in Oxford a chair of physiology has been liberally endowed, and all requisite advantages have been afforded for study, both general and practical; and we may confidently anticipate, that under the guidance of the accomplished and energetic Professor who has already begun his labours, the ingenuous youth who resort to that great city of learning, untrammeled by the calls of professional study, will powerfully aid in the advancement of the science. The elementary truths of physiology are now also becoming a subject of instruction in ordinary schools, and in the general spread of the knowledge of the living economy good seed may here and there fall on fertile ground, and yield a return in kind. The more general

diffusion of this species of knowledge, moreover, although not intended to instruct mankind in the cure of disease, may teach them to shun its avoidable causes. Above all, such knowledge is well calculated, as we know it is sorely needed, to save men, even of high intellectual and social position, from becoming the victims of illusion, or the dupes of imposture.

As I have spoken in commendation of experiment, I cannot avoid digressing for a moment to say a few words on the indignant, but mistaken, declamation in which many well-meaning persons permit themselves to indulge against experiments on animals, which they indiscriminately denounce under the opprobrious name of vivisection. This is a matter which not only touches the character for humanity of physiologists, but concerns our common profession. It is a subject on which I have reflected much in the course of my life—soberly, I trust, and impartially, apart from professional predilection, and with due regard to extra-professional sentiment; and I trust this will not be deemed an unfitting occasion for expressing an opinion. Experiments on brute animals have been stigmatized as cruel, barbarous, and inhuman in themselves, and calculated to blunt the feelings and roughen the nature of those who engage in or witness them. Cruelty, I may remark, is defined by our greatest authority on the meaning of words to be, "delight in the pain or misery of others;" also, "an act of intentional affliction." But let us not take shelter under a definition; let us admit unreservedly that the sacrifice of animal life or the infliction of pain, unless with a view to some commensurately useful result, is utterly indefensible. Tried by this test, I believe the great majority of experimenters would be pronounced free from just censure. Attention has, it is true, lately been directed to proceedings carried on in some foreign veterinary schools, where the pupils, in order to learn operative dexterity, are allowed and encouraged to practise severe operations on living animals. Seeing that every useful end may be obtained by operating on the dead body, the practice in question has excited the just indignation, not only of the world at large, but of the medical profession, and has been fittingly reprobated by the organs of medical opinion. Experimental physiology has, happily, not to answer for these revolting proceedings, although it may suffer through the indiscriminating odium they are calculated to stir up. As to physiological experiments, strictly so called, I may remind you that a large proportion of them are attended with the immediate death of the animal, and therefore involve only momentary pain, or are performed when the subjects have been rendered insensible by anæsthetic agents. These, then, are cases involving, at the most, only the sacrifice of animal life; and when we consider the countless myriads of the brute creation that are daily slaughtered for man's sustenance, or are left to perish from hunger or the severity of season, or fall a prey to their natural enemies,—to say nothing of the myriads killed for sport,—surely it is not too much to claim that an infinitesimal share of this vast sacrifice may be applied towards the extension of human knowledge and the alleviation of human suffering. Experiments, no doubt, still remain in which the infliction of pain, more or less protracted, cannot be avoided. In such cases the adequacy of the end in view, and the reasonable probability of its attainment, must constitute its justification. And let it be considered that by such means most of the fundamental truths of physiology have been established, including the doctrine of the circulation itself, the practicability of important surgical procedures has been tested, the nature of disease and the action of poisons on the animal body elucidated, remedies suggested, and innumerable results obtained,—needless to specify before this audience,—which have tended to the recognition of scientific truth, or the promotion of the material good of mankind. But I doubt not you will agree with me in thinking that when a result has been thoroughly established by repeated trials on competent authority, it is, at least as a general rule, scarcely warrantable to repeat a series of severe experiments solely to prove the matter again for our own satisfaction. And, doubtless, you will also agree that discretion is especially required in the exhibition of painful experiments for the sake merely of instruction. In this country, indeed, the exhibition of experiments in lectures is not carried to any considerable extent; moreover, they may be, for the most part, performed on animals deprived of sensibility. As to other cases, there are occasions when, I venture to think, their exhibition is justifiable and proper: as, for instance, when they serve to impress vividly on the mind some great fundamental truth in science, or when the purpose is to impart to the learner a species of knowledge which is important for the safe practice of his profession, but which he cannot readily acquire in any other way: as, for example, the symptoms and effects produced by various poisons, ignorance of which may lead to fatal errors in practice, or to the miscarriage of justice, and that, too, when innocent life may be at stake. Lastly, your own experience, and your intercourse with men who have largely engaged in such experimental investigations, must convince you that there is no real foundation for their alleged evil influence on those who practise them. I need not multiply examples in support of this averment. Haller, who set high value on experiments on animals, and often had recourse to them, was not only an illustrious physiologist, but a man of refined taste, highly accomplished in polite literature, and assuredly of no ungentle nature. And if our social censors demand a living proof that the discreet and judicious employment of experiments on animals is not incompatible with kindness of heart, elevation of sentiment, scholarly taste for letters, and with serene and fruitful meditation in philosophy, I need but mention the venerated name of Sir Benjamin Brodie, who, before he became engrossed with the duties of his great professional career, had earned the highest distinction as an experimental physiologist.

In proceeding now to speak of improved methods and appliances in physiological investigation, I will first refer to the extension of our means for the actual inspection of phenomena. If, under this head, I mention the microscope, I shall doubtless be told that it is of ancient use in physiology; but its powers have been enhanced and its use extended. I might also tell, that twenty-five years ago I was one amongst the very few medical teachers in this country who exhibited objects to students with the microscope. Indeed, at that time we had to meet and answer objections to its employment, whereas now it has become almost a household instrument. I remember, too, the time when we had to work laboriously with small lenses, by reason of the defects of the compound microscope; but thanks to the improvement in achromatic objectives, for which we are especially indebted to the suggestive skill of Mr. Joseph Jackson Lister, the compound instrument is now available for every purpose, and, in the hands of British and foreign makers, goes on improving, both in its principal parts and accessories. And here I must not omit to acknowledge the influence of the Microscopical Society, which, by bringing together men of various pursuits for the common purpose of promoting microscopical research and encouraging improvements in the instrument, as well as by spreading the knowledge of microscopical science by its publications, has contributed in no slight degree to further the advance of physiology.

In the ophthalmoscope we have now the means of inspecting the interior of the eyeball; and although it has as yet been employed almost exclusively for the investigation of disease, nevertheless, as it brings under our scrutiny the internal surface of the eye and the condition of the transparent humours, so as to expose the cause of various entoptic phenomena, and other affections of vision, it cannot fail to extend our knowledge of the physiology of the organ.

The condition of the glottis during the production of the voice and in various states of respiration, as well as the changes of the vocal cords in the intonation of the different notes, has long been a subject of interesting inquiry to physicists and physiologists, but heretofore our knowledge has been mainly inferential from the known structure of the vocal organs, from the results of experiments with the dead larynx, and observations of the few changes perceptible externally, considered in relation to the laws of acoustics. Accordingly very different views have been held, and various interpretations given, of the matters in question. Now, however, a simple apparatus has been devised for bringing the glottis and its movements under the cognizance of our eyesight. In 1855, Mr. Manuel Garcia described and caused to be exhibited to the Royal Society a small reflecting speculum, by which he was enabled to inspect the glottis, and at the same time gave the results he obtained with it in reference to the mechanism of the voice. Garcia, however, was unable to bring the whole extent of the glottis into view, but more lately the method may be almost said to have been brought to perfection in the laryngoscope of Professor Czermak. By means of this instrument the whole of the glottis and adjacent parts are clearly seen, its condition during vocalization, and the changes of the cords in the production of the different chest and falsetto notes become patent to the eye, and the ingenious contriver has actually succeeded in producing photographs, nay, stereoscopic views, of the phenomena. It is needless to enlarge on the physiological value of this visual test applied to the various speculations on the voice. I notice it here as a conspicuous example of an unseen process in the human body, which has remained hidden throughout all bygone time, being in our own day brought fairly into light.

Although not strictly coming under this head, yet, as a

means of exploring deep-seated phenomena, I may notice the thermo-magnetic multiplier, by which Becquerel, transfixing a muscle with a needle composed of two metals connected with the multiplier, ascertained that the temperature rises during muscular contraction. This apparatus, as well as the highly sensitive galvanic multiplier of Du Bois Reymond, may also be cited as a means of multiplying indications of minute changes.

But one of the most significant steps that have been made in modern physiology is, in my judgment, the general recognition of the importance of exact numerical determination, whether as to time, space, or quantity, and its general application to those phenomena of the animal body which are susceptible of it. An eminent authority, Sir John Herschel, speaking of the advantages of numerical precision, declares that it is the very soul of science—that its attainment affords the only criterion, or at least the best, of the truth of theories, and the correctness of experiments. I may remind you that the introduction of quantitative determinations in the time of Lavoisier brought about a complete revolution in chemistry. It led directly to the recognition of definite combining proportions, the basis of the atomic theory, and brought in the system of chemical notation, which has entirely changed the face of the science. Moreover, the advantage gained consisted not only in the direct discovery of truth, but in the dissipation of error. The spurious but fascinating theory of phlogiston, which had so long held absolute sway in chemical doctrine, could not withstand the inexorable logic of the balance. There was an earlier time, indeed, when numbers and geometrical representations were largely dealt with in physiology, but they rested on no experimental data, and could only lead to error and confusion. I allude, of course, to the time when men's minds were so vividly impressed with the successful application of mathematics to the phenomena of the material universe by Newton, that they were tempted from a loose analogy to apply geometry and the calculus where they had no legitimate place. So far, indeed, did the prevailing enthusiasm extend, that even theology did not escape its influence; and a divine of the church, who has earned some distinction in the history of infinitesimals in this country, actually published a theological system under the strange title of "Religionis Christianæ Principia Mathematica." While mathematical physicians reckoned without solid data, physiological inquirers of the present day seek first to obtain such data upon which they may reckon. Numerical statement has of course long been used in the chemistry of the animal body. But I wish here to refer to the application of exact measurement to the physical phenomena concerned in physiological processes; and, as a principal example, I will select the circulation of the blood.

The first, though but solitary, steps in this path of inquiry were undoubtedly made long back in the last century by Dr. Stephen Hales, who, though a reverend clergyman of the church, and continually occupied with useful projects for the public good, did not scruple to engage in experiments on living animals. Dr. Hales measured the pressure of the blood in the vessels, and recognised its fluctuations caused by the impulse of the heart and the movements of the chest. His procedure consisted in introducing a tall glass tube into a bloodvessel, and measuring the height to which the blood rose in the tube, in consequence of the pressure to which it was subjected within the vessel. About thirty years ago M. Poiseuille, a distinguished French physicist, who after a long interval took up the inquiry, substituted a short bent tube containing mercury for the long unmanageable column of blood, imitating in this respect the great example of Toricelli, when he substituted mercury for water to measure the pressure of the atmosphere. Poiseuille's instrument, which he named the hæmadynamometer, has been of late further improved. A contrivance has been added by which the oscillations of the mercury are inscribed in the form of an undulating curve on a cylinder made to revolve by clockwork; the height of the undulations of the curve denoting the pressure, and their horizontal amplitude, the time. The revolving cylinder, I may observe, is employed for recording other measurements, as, for instance, the extent and velocities of the contractions of muscle. By this method the mean pressure of the blood in the arteries is ascertained in various species of animals, and its fluctuations, caused by respiration and the heart's impulse, recorded in comparable diagrams; also the rate of decrease in the smaller vessels, and the relation of the pressure in the veins to that in the arteries. It is thus shown that the heart is adequate to propel the blood through its entire circuit without the aid of capillary forces, vital attractions and repulsions and various fancied agencies which have got credit for auxiliary service now shown to be not required. The velocity of the blood, too, has been determined. Hales measured its rate in the capillaries of the frog, and the exactness of his measurement has been confirmed in our own day. The rate has since been obtained for the capillaries of warm-blooded animals. More lately the vastly greater velocity in the large arteries has been ascertained and approximately measured by means of instruments contrived by Volkman and Vierordt. Lastly, the time of an entire circulation, or at least the time taken by a given portion of blood to perform its entire circuit, has been determined by a well-devised experiment of Hering, and found to be certainly not more than half a minute. This result, startling at first by reason of the unexpected shortness of time, has been amply confirmed by subsequent experimenters. The extreme swiftness of the blood thus demonstrated is after all in harmony with the known rapidity of secretion, absorption, and other phenomena depending on the circulation. Indeed, in reasoning on the animal economy, whether in health or disease, we cannot too constantly bear in mind the extreme rapidity of many of these vital processes. Had this consideration been kept in view, there would have been no need for imagining the existence of hidden passages, *viæ clandestinæ*, to account for the sudden conveyance of substances from the stomach to the kidneys, or resorting to erroneous interpretations of the marvellously sudden action of certain poisons.

The same consideration enables us to conceive the rapid redintegration of energy in the rhythmical action of the muscles by nutrition in the interval of rest, which was pointed out by Mr. Paget, as doubtless a main condition of the rhythmical motion of the heart, diaphragm, and other muscles acting in like manner.

I may add that the entire quantity of the blood in the body, which used to be reckoned at about twenty-eight pounds in an average man, is now ascertained to be not much above half that amount.

Exact determinations of a corresponding kind have been introduced into the physiology of nerves and muscles. The extent, velocity, and force of muscular contraction under different determinate degrees of stimulus, under the influence of poisonous agents and of various other conditions, have now been submitted to accurate measurement and record. But perhaps the greatest triumph of precise instrumental determination, as applied to the phenomena of life, is the measurement of the velocity with which the excitement by a stimulus is conveyed along a nerve. This has actually been accomplished through the sagacity and ingenuity of Professor Helmholz, and the result is, that, compared with analogous phenomena in the external world, nervous excitement travels very slowly. So far from being comparable in this respect with light or electricity, it is much inferior even to sound. In the muscular nerves of frogs, Helmholz found the average rate to be between eighty and ninety feet in a second; and, what is of great interest, he found it was retarded by cold. The rate of speed in warm-blooded animals is but very imperfectly determined, but it would appear to be probably more than twice as great as in the frog. To these examples others might be added, did time and my estimate of your patience permit: such as the comparison, by means of measurement, of the sensibility of different parts of the cutaneous surface, and its variations from exercise of the function, disease, and other circumstances; also the determination of the extent and force of respiration, and other physiological quantities or constants. But enough has been adduced to illustrate the spirit of exactness which now animates physiology.

Proceeding now to touch on the accessions of material knowledge and changes of scientific doctrine which mark the progress of physiology, and beginning with physiological chemistry, I need scarcely remark that the spirit of research in that department has been so busy, and the results obtained so vast and so varied, that, compared with its importance, my reference to the subject must be but slight and partial. I may remind you, in the first place, of the knowledge gained concerning the proximate principles of food; the recognition in plants of albuminoid compounds, in virtue of which vegetable nourishment sustains animal life; the light thrown on the changes which nutrient matters undergo in the alimentary canal, fitting them for absorption and reception into the blood, and on the operation of the salivary, gastric, and pancreatic fluids in producing these changes, as well as the discovery of the peculiar constituents of those fluids on which their efficacy depends. Doubtless, also, all are well aware of the broad and luminous views emanating from Liebig and his school, as to the use, immediate destination, and ultimate disposition of the several constituents of the aliment, in repairing the consumption of the tissues and maintaining the heat of the body; and the final identification, qua-

litative and quantitative, by Schmidt, Boussingault, Barral, Bischoff, and others, of the constituent elements of the nutritive principles as discharged by the lungs, kidneys, and skin. It is now also shown that these exuvial materials, after being delivered over to the earth and atmosphere in the shape of water, carbonic acid, and ammoniacal urinary products, become available as the food of plants, by which they are again combined into proximate principles, and serve anew for the sustenance of the animal kingdom; and in this admirable cycle of interchange and reciprocal compensation between the three kingdoms of nature we are permitted to see another example of that tendency to the maintenance of order and stability so conspicuous in the phenomena of the universe. But although the chemist thus presents us, as it were, with an accurate balance-sheet, showing the food taken into the system and the final products coming out, and has shown us that the supply can be identified and accounted for in the expenditure, we are still but imperfectly informed of the intermediate changes which the nutrient matters undergo in the blood and in the tissues before they are brought to their finally excreted condition. Among the actual data which afford a basis for this inquiry, and which may eventually lead to the solution of the question, I refer to the several compounds which have been obtained from muscle, and which are probably the immediate products of the metamorphosis of that tissue; but especially to the brilliant discovery by Bernard of the production in the animal economy of a substance analogous to starch. This amyloid substance, glycogen, shown by Bernard to be largely generated in the liver, and, according to subsequent experimenters, also in the muscles and other tissues, is supposed to be converted into sugar and finally oxidated; although Dr. Pavy, led by his ingenious and laborious researches, has thrown doubt on its actual conversion into sugar during life. However this may be, it is plain that in the production of glycogen we see the actual formation of a hydro-carbonous product in the animal body; and as its production goes on when hydro-carbonous food, and indeed every kind of food, is withheld, it probably represents one of the transitional conditions through which hydro-carbonous matter, whether proceeding directly from the food, or derived from the metamorphosis of the albuminoid tissues, passes before final oxidation. As bearing on these larger questions, I would also refer to the advances made in the chemical examination of the tissues and fluids, especially of the blood; to the recent views respecting the condition of the inspired oxygen of the blood; the experiment of Harley and Lothar Mayer, showing, in opposition to Magnus, that the oxygen is not merely retained in the fluid by physical absorption, but held by chemical affinity; also the recognition of ammonia in the blood, and the well-known discovery of our distinguished associate, Dr. Richardson, of its efficacy in maintaining fluidity.

It is worthy of note that in the course of such inquiries particular facts are sometimes elicited which afford hints of fresh discovery and suggest important practical applications. The unlooked-for contrast between the saline constituents of the blood-plasma and corpuscles, the one containing chiefly soda and the other potash, and the predominance of potash in muscle, taken in connexion with the well-known impairment of muscular strength and impoverishment of the blood in scurvy, led Dr. Garrod to suspect that the disease might be connected with deficiency of potash in the system; and on farther reflecting that the most approved anti-scorbutic remedies and aliments contain much potash, he was led to try that substance as an antidote, and, so far as experience goes, has found it a promising one. Instances like these should teach us not to disregard apparently slight differences, provided they are constant. I remember the time when potash and soda passed practically as equivalent; we have now reason to think that they perform very different service in the living economy. As another illustration of the point now urged, I may mention the difference observed by Dr. Edward Smith in the effects of rum and brandy, even in small quantities, on respiration — the one always increasing the exhaled carbonic acid, the other as invariably diminishing it. And here, again, we are reminded that the differences in various liquors, or of the same liquor according to its age, although in no way cognisable by chemical analysis, cause very different effects upon the human system. Let no one imagine that I mean to put in a word for homœopathy. I have no faith in the dogma of *similia similibus curantur*, nor in decillionth solutions and dynamizing processes. I wish only to urge that it is both unphilosophical and impractical to disregard minute quantities and faintly-marked differences, provided always their observed effects are constant. We are familiar with the influence of odours upon the nervous system —intense in their effects, but in substance eluding the subtlest chemistry. And I may borrow an illustration of the same point from physical science. The volatile matter in a Torricellian vacuum must be to the last degree attenuated, and yet it counts for much in certain phenomena. It conveys the luminous electric discharge in all its brilliancy of beauty; while, as discovered by M. Gassiot, a more perfect void, like a gulf, stops transmission altogether. Again, it is known that obscure radiant heat is partially absorbed in passing through gases and vapours, but in very different degrees; and Prof. Tyndall shows that the absorption of terrestrial rays by the vaporous odour of a flower-bed may exceed in amount that by the entire oxygen and nitrogen in the column of the atmosphere incumbent on the same area.

But it remains for me yet to notice one of the most important conclusions which the recent chemistry of nutrition tends to establish. In an artificial machine the moving force must be supplied from without. The apparatus cannot generate force by its own intrinsic mechanism, otherwise there would be realized the principle of perpetual motion. The spring which moves a watch must first be wound up, and it merely gives out by slow distribution the force that has been imparted to it quickly. Again, the heat which moves the steam-engine is obtained by the combustion of coal, and the sum of the heat evolved and the mechanical force generated exactly corresponds with the amount of fuel consumed. Now a belief at one time prevailed that the natural machine of the animal body was exempt from these conditions, and was endowed with a faculty of generating force intrinsically and independently of outward agencies. The connexion between the taking in of food and the development of force was not recognised; the nourishment seemed to be destined only to grease, as it were, the wheel-work of the machine—to replace what was used up, and renew what had grown old. The teaching of modern physiology is different. In the albuminous and hydro-carbonous food, in the inspiration of oxygen, in the wear and repair of the tissues, and in the discharge of altered and residuary matter, we see materials and processes for the evolution of heat, and for the production of the energy manifested in muscular and nervous action. The conditions are too complex, and the data of a precise and trustworthy character are yet too scanty, to permit the demonstration of an exact equivalence between the heat and work produced in living bodies and the chemical forces which are set in action. But there is still an obvious parallelism, a certain correspondence, in the variation of these two quantities, which presses on us the conviction of mutual dependence. But while the heat evolved in the living body can within a small fraction be accounted for by known chemical actions, and the development of muscular force is measurable, and is shown to be accompanied by chemical changes, chiefly oxidation of the muscular substance, with which it may be compared in amount, it must be observed in regard to the nervous energy that, although we have indications to show that its manifestation involves consumption of nervous matter, and the one is probably proportionate to the other, yet, as we have no means of measuring the intensity of sensation and volition, not to speak of other energies of the nervous system, we cannot profess to establish that quantitative relation.

Nowhere has the spirit of modern research been more active or more fruitful than in the physiology of the nervous system, but as this was made the subject of an elaborate address delivered before the Association three years ago, I shall confine myself to one or two later accessions in this department. I must, however, first notice the important method of research introduced some years ago by Dr. Augustus Waller for tracing the distribution and determining the functions of the nerves. This method consists in taking advantage of the disorganization of the peripheral part of a nerve which follows on its section, in order to identify its fibres by their altered state when associated or entangled with nerve-fibres derived from other sources; also by stimulating a nervous trunk after the fibres of one or more of its tributaries have been thus rendered ineffective, to ascertain what share of the function belongs to each. On all sides inquiry has been carried on into the electricity of the nerves and muscles; but out of so vast and valuable material I would merely point as especially worthy of attention, the investigations of Pflüger into the laws of the electric excitement of nerves, as well as the discussions to which they have given rise, and particularly the ingenious confirmatory researches of Von Bezold.

Although every part of nervous physiology possesses intense interest, I confess at this moment I feel most deeply impressed by the knowledge recently gained respecting the influence of the nervous system on the organic or nutritive functions. Many long years did physiologists search for positive experimental

evidence of the influence of nerves on bloodvessels. It has now flowed in abundantly, and I cannot help ascribing some considerable share of the success of recent inquiries to the employment of the electric induction-coil and the intermittent current, as a much more effectual mode of electrically stimulating the nerves than the means previously in use.

The influence of the nervous system on secretion has been long acknowledged; the sudden flow or arrest of various secretions through mental states has afforded ample evidence of the general fact. Lately, however, it has been shown by Ludwig, Bernard, and others, that the secretion of glands, and more especially of the salivary and lachrymal glands, may be increased by artificial stimulation of their nerves both direct and reflex. Bernard has also observed the remarkable fact, that whilst the gland is in activity and secretion going on, the flow of blood through its vessels is greatly increased, and the passing blood, thus increased in quantity, does not acquire its usual dark colour in the veins. The interesting result, too, has come out, that whilst the stimulation of certain cerebro-spinal nerves proceeding to the salivary glands augments the secretion, similar excitement of the sympathetic branches checks its flow, and also greatly reduces the current of the blood. It is thus plain that the nerves operate on the bloodvessels, the cerebro-spinal causing dilatation, acting probably as the vagus under similar excitement affects the heart, while the sympathetic has an opposite effect.

Nevertheless there are other phenomena brought out in these experiments going a long way to show that in promoting secretion the stimulated nerve does not act simply in an indirect manner through change caused in the vessels; and there are not insignificant grounds for supposing that the nervous excitement may operate directly on the elements of the glands, and bring about chemical changes in the contents of the gland-cells. There is also independent evidence of a more conclusive character to prove that cells, or rather their contents, may be indirectly influenced through the nerves. The pigment-cells of the skin of the frog change their appearance under the influence of the nerves, and this phenomenon has been shown by Professor Lister to consist, not in contraction and dilatation of the cell-wall, as was supposed by the German physiologists, but in a movement of the minute pigmentary molecules with which these ramified cells are filled; and this movement may be brought about by stimulating the nerves, both directly and in a reflex manner. That chemical changes in cells may be influenced through the nerves is shown in a striking manner by Kölliker's experiments on the luminiferous organ of the fire-fly. Facts such as these appear to me especially worthy of record, as the phenomena they present, being comparatively simple and open to observation, are well calculated to afford an insight into the agency of the nervous system in more recondite processes. I am led by these considerations to remark on the great advantage that has accrued, and that is likely further to accrue, from an extended acquaintance with the structure and economy of creatures of essentially simple organization. It is in these humblest representatives of the living organism that we may hope to find physiological problems presented in their greatest simplicity, and most thoroughly disentangled from unessential complications. Many ingenious but futile theories of muscular motion would never have seen the light, had the vitally contractile substance and its affections been studied in the protozoa.

In the physiology of reproduction, the old question of spontaneous generation has been lately revived and submitted to further discussion; but, as I think, has been satisfactorily answered in the negative, and especially through the admirable investigations of M. Pasteur. That most able and accomplished inquirer has not only proved the non-appearance of infusorial organisms when adequate means are taken to exclude their germs, but has succeeded in actually demonstrating the presence of such germinal spores in the atmosphere. Air was made to pass through a tube filled with gun-cotton, taken from a sample proved to be free from foreign admixture. The cotton was then dissolved in ether or chloroform, and the sporules of algæ and other small organisms which had been entangled in their passage were found in the liquid. It cannot but occur to us that this simple, and to all appearance efficacious, method may be advantageously employed to explore miasmatic and infected atmospheres. M. Pasteur was led on by these inquiries to a careful study of the phenomena of fermentation; and he has not only added largely to our knowledge of the chemical changes and products presenting themselves in that remarkable process, but has thrown much light on the operation of the living organisms on whose presence and influence it appears to depend.

But while the origin from parents and reproduction of their like still remain as great characters of living beings, it has been discovered that in some of the lower grades of the animal kingdom the offspring, before reaching the condition of the parent, passes through a series of strange vicissitudes, not merely representing the changes of form, structure, and habits observed in the well-known transitions of an ordinary larva, but involving the production of a new brood or new broods by the still unfinished being, differing from it in form and structure, and finally assuming the characters of the original parent. Various insulated cases of this phenomenon, delusive as they sometimes were to the systematizing naturalist, had previously been noticed in different quarters; but the first connected view of the subject was given by the Danish naturalist Steenstrup, in a work which has been translated and published by the Ray Society. The process now referred to has been named "alternate generation, or metagenesis." It possesses especial claims on the interest of the medical profession, inasmuch as some of the most remarkable examples of it occur amongst the entozoa. It is now known, for instance, that the cysticercus is but a certain state or stage of the tape-worm; and here I must refer to the interesting researches of Mr. George Rainey on this subject, published in the "Philosophical Transactions." I have time only, however, to explain that while the stages of transition from the cysticercus to the tænia had been satisfactorily traced, Mr. Rainey discovered that the tænia embryo, in its conversion into the cysticercus, passes through a curious phase which had not been till then observed.

I pass over the renewed investigations on the generation of the aphides, which has been a curious subject of speculation since the days of Bonnet and Reaumur, in order that I may dwell for a moment on the startling discovery that animals with sexual organization, and holding no mean place in the scale of being, may produce young from eggs never fertilized by the male. I doubt not you have heard of the remarkable observations of Dzierzon and Von Siebold, which prove that the eggs of the queen bee produce drones without being impregnated, and that the impregnated eggs invariably produce neuters. No explanation has been attempted of this singular result, except in reference to its final purpose in the economy of the hive; and it becomes all the more perplexing when compared with the case of certain moths, in which "Parthenogenesis," as the process is called, has also been discovered; for in some of these unimpregnated eggs give rise exclusively to female offspring, while in the silkworm both male and female young may issue from eggs without impregnation. With regard to the actual process of impregnation, it is now satisfactorily proved that the male element passes into the interior of the ovum. Spermatozoa, improperly so called, have now been traced within the ovum of many different animals, mammalia not excepted, and there can be no doubt that this is the general condition of sexual fecundation. The study of embryonic development, which had engaged the interest of the great Greek naturalist, and was prosecuted with more or less success after the revival of science down to the epoch of Caspar Frederic Wolff in the last century, received a fresh impulse from the admirable researches on the evolution of the chick by Pander, now more than forty years ago. Pander, in fact, discovered a fundamental principle which regulates the early stages of the process, and which became, as it were, a compass to guide succeeding explorers in this interesting but difficult field. Investigation has now been pushed so far, that I believe I am right in saying that the development of the embryo has been studied more or less fully in examples representing all the great and many of the subordinate divisions of the animal kingdom. You are aware that the study of embryology, besides serving to elucidate the genetic economy in the particular animal type to which each example belongs, has a twofold general application—namely, first to the establishment of the general laws of formation of the animal body, and the relations as to homology of the several parts; and secondly to the investigation of the development and essential relations of its constituent textures: in short, to morphology and histology. The doctrine of homology, which took its rise through the genius of Goethe, and which has since been so ably and successfully prosecuted by comparison with the mature animal structure by Geoffroy and Meckel, and especially by Owen, was placed on the securer but yet not exclusive basis of embryology through the sagacity and industry of Rathke and Von Baer. The surpassing beauty and interest of the teachings of homology are seen especially in its relations to comparative anatomy and zoology, and therefore I should not make any further reference to it here, even did I feel myself more competent to the task.

For the first quarter of the present century and more, the study of the animal tissues and of the intimate structure of

the viscera scarcely moved beyond the point at which it was left by Bichat. Its signal advance since that time, as I need scarcely say, has been mainly owing to the extended use of the microscope and the improvements in that instrument, as well as the skilful employment of suitable reagents for bringing out the microscopic characters of the objects; and in the improvement of these last-mentioned resources there is no name more deserving honourable mention than that of our able and zealous associate, Professor Beale. But in following the history of modern inquiry, it is pleasing from time to time to meet with examples evincing correct and careful work by Leeuenheck and Malpighi, our own ingenious countryman Hooke, and other early labourers in this field,—instances, indeed, of true but neglected observations of that early time verified in our own day, like living seeds long dormant in the ground, which are turned up by the furrow of a later cultivation.

But to return to the development and nutrition of the tissues. The grand feature of progress in this direction is the application to the animal tissues of the principle of cell agency and cell metamorphosis, which had already been recognised in the vegetable kingdom. The cell theory of animal growth and development, on its promulgation by Schwann in 1839, was received and adopted with eagerness amounting almost to enthusiasm. Men fancied that in the power of the cell they had found the way to unlock the secrets of life: each cell had, as it were, its ministering genius working out an assigned task in the living economy. There was, in truth, a return to the Helmontian doctrine of the archæus; but instead of a single autocratic ruler over the whole system, it was a confederation of archeoli, each dominating in its own cell, and all acting in concert towards a purpose, like bees in a hive. But although the fact of the several existence and joint operation of the cells was true, it was seen, on a more sober view, that to ascribe this to an all-efficient cell power amounted to no real extension. After making all reasonable abatement, however, the cell theory, modified as it has been, and still undergoing modification, remains one of the most fertile ideas in modern physiology. Among the simplest modes of animal and vegetable existence we have examples of a body with the characters of a cell, constituting a complete organism, assimilating nourishment, undergoing growth, and reproducing its like: exercising, in short, the functions of an independent living being. The offspring of the higher animals first appears as a cell; the embryo for a time consists of an aggregation of cells. Throughout after-life, also, certain textures retain the cellular structure. Cells are employed in separating matters from the blood to be discharged in secretion; and may become the seat of chemical and plastic processes, or even of higher operations, as in the nervous system. It was, however, soon perceived that various kinds of tissue were produced without the immediate intervention of cells, by molecular changes taking place in an amorphous intercellular substance. But even in this case it is held by many that this substance is first converted from raw material into an organizable blastema by the agency of neighbouring cells. Again, the efficacy of cells has been very variously estimated in the nutrition of mature organs and textures. On the one hand it is maintained that the organized fabric is kept up, like the population of a city, by the continual formation of new structural elements to take the place of the old; and this is undoubtedly true of epidermis and some other allied structures. On the other hand it is contended, and with reason, that, with the exceptions alluded to, renewal may take place particle by particle, the new matter replacing the old by what may be called molecular substitution. But even among those who adopt this last hypothesis, it is with some a favourite opinion that the bodies like cell nuclei, which are persistent in most of the mature tissues, if they do not generate new-form elements themselves, select appropriate materials from the interstitial fluid, and fit them for taking part in the organic structure. But it has been urged, and justly, that the so-called cells are not always vesicular in structure, that the envelope or cell-wall is not an essential part, and that the nucleus, and more or less of the matter surrounding it, really constitute the organically active element. In this view, therefore, the envelope when present is merely an insulating and containing part, which might be compared to the flask which holds the active ingredients in a chemical process. Still it is a permeable shell which permits the entrance and issue of matter, and which stands in intimate relation to the intercellular substance; indeed, as pointed out by Mr. Huxley, is homologous with it. There may or may not be a distinct vesicular envelope; but, in either case, the nucleus or cell-contents remain insulated in, and contrasted in properties with, the intercellular substance. To express this relation, Mr. Huxley accordingly proposes to call the former, "endoplast," and to distinguish the surrounding substance with the envelope, if present, as the "periplast." Lastly, a great difference of opinion prevails as to the origin of cells. Some physiologists and phytologists hold that cells are invariably and exclusively derived from other cells; that all the cells of an organism are descended by successive generations from the cell of the ovum originally proceeding from the parent. It is as strenuously maintained by others that nuclei and cells may arise independently in an organizable blastema—nay, that they may be produced in fluid organic matter by a mere physical process. Neither competent assertion of opinion nor ample allegation of fact is wanting on either side of this and the other questions referred to. Observations conflicting with each other spring up indeed on all sides in rank growth; but the time is not come for separating the tares from the wheat.

And now, gentlemen, in drawing to a close, I may be expected to say a word on the prevailing views as to the powers which animate the living organism. I have already remarked that many processes of the living economy issue in physical or chemical results, and I have stated that the more or less close relation subsisting between these results, so far as they can be estimated, and the consumption and oxidation of nutriment as indicated in respiration and excretion, would seem to show that the chemical and mechanical forces developed are derived from an extrinsic source; at the same time that there are energies displayed in the living body not yet estimated in amount, concerning which, therefore, there is not the same clear evidence. I refer especially to the nervous energy. In speaking, however, of nervous force, I understand that force which is common to all creatures possessing a nervous system, from the highest to the lowest. This nervous force has long been likened to electricity, but rather through a vague perception of analogy than from any rigorous comparison. It is true that electric force is developed in the nerves, and even exhibits modifications connected with different conditions of nervous action. Still it must be borne in mind that the evolution of electricity is a common accompaniment of various processes involving chemical change, whether within the living body or in external nature, and the tendency of recent speculation is not towards the identification of the nervous force with electricity, but rather to suggest that the two stand related in the same way as electricity and other physical forces are related to each other—that is, as manifestations of a common force or energy, of which they severally are the special modifications. Since the memorable experiments of Rumford on the heat of friction, which led that philosopher to the conclusion that heat is a form of motion, and the determination by Dr. Joule at a later period of the equivalent of heat, expressed in mechanical work, the doctrine of the commutability and equivalence of force, first applied to these two agencies, has extended itself to the other forces operating in the material universe. Accordingly, the opinion is now gaining consistency and acceptance that mechanical energy, heat, light, chemical action, electricity, and magnetism are mutually convertible, and are respectively equivalent to each other; moreover, that they are probably all the expression of a common force which manifests itself under these several modifications, according to the different material or dynamic conditions in which it operates. Now, the belief has sometimes prevailed that the nervous, with, perhaps, other forms of organic energy, has its place in the same circle of reciprocally productive and equivalent forces, and not being electricity more than it is heat or chemical affinity, yet stands related to electricity and the other forces, in the same general way that they are related to each other. But supposing this probable doctrine to be proved and to betoken a signal advance in physiology, are we come to the end of our inquiries? are we thereby enabled to explain even the most characteristic phenomena of a living organism? By mechanical force duly applied, a fabric may be woven as well, or perhaps better, than by human hands; but by what intelligent pre-arrangement, I would ask, is the pattern determined and finally brought out? So in the production and development of an animal, and in its subsequent workings; given the force or forces operating, how are the determinate forms and qualities of the organism produced? To all our most exquisite means of scrutiny, the ovum, as it proceeds from the parent, presents nothing to indicate the course of its future development; and yet we speedily discern in it the traces of the new being, and recognise the successive appearance of each new member and organ, in due time and form and proportion, until the body is built up and completed after the pattern of the parent. We can perceive nothing in the ovum of man to distinguish it from that of a quadruped, although their final destination is so different. We are constrained, therefore, to admit some pre-existent condition—to us inscrutable—which

determines the specific direction in which the forces acting in development, although probably supplied from without, must operate within the organism. And the marvel reaches its height when we reflect that not the character of the species merely, but the individual likeness of the parent—aye, of both parents, displays itself in the offspring, and not alone in bodily features, but often also in intellectual and moral peculiarities. Then not alone in regulated form and proportion do the parts appear, but all fitting harmoniously, the one to the other, and each at its appointed time. The periods of incubation—different, but determinate, in each species; the regulated time of consolidation and completion of the bones of the skeleton; of the eruption and succession of the teeth; the periods of maturity and decline of the whole body and of the particular organs; and a host of examples supplied by the history of the lower members of the creation serve to illustrate that conspicuous law of subordination to time in the phenomena of the organic world which Mr. Paget aptly designated as "the chronometry of life."

Now, although we can in many cases discern the purpose of these adaptations of form, proportion, and time, and perceive how they, as it were, fit in with, although not apparently produced by, the outward circumstances in which the organism is placed, and while we must revere the infinite wisdom with which they are harmoniously brought about, we are still utterly at a loss to explain them by reference to efficient causes. In some of the lowest tribes of animals, it is true, the results are affected more or less by physical influences; but these influences operate upon internal conditions existing independently. In the human body even you may cramp the growth of a Chinese foot or flatten a Carib's skull; but this is suppression or distortion, not formation. The growth of a finger or a tooth may be traced, and various steps in the process explained; but the acquirement by these and other parts, and indeed by the entire body, of their characteristic form and proportion, is still an inscrutable, at least an unpenetrated mystery—unpenetrated, I mean, as regards the physical or efficient causes of the phenomena; for the purpose, or the final cause is often patent, and hence we see that teleological explanation holds, and must continue to hold, a large place in physiology.

But, finally, shall we on that account censure as rash, or stigmatize as impious, all attempts to go further? Shall we presumptuously set limits to the scope of those inquiring faculties which God has conferred upon man, or prejudge and reject by anticipation conclusions to which their rational and reverential exercise may lead? Assuredly not. Let us not, therefore, with narrow views of the scheme of Providence, worthy of a darker age, join in blindly denouncing the genial effort of one of the foremost men of science in our time to refer mutations of organic forms, and the origin of species to natural causes of known operation. Faint as some may deem the prospect of success of Mr. Darwin's great attempt, let none condemn its tendency. Should it ever be shown that the wonderful adaptation and harmonious working, so conspicuous in the living creation, have been brought about by the operation of great natural causes, originally ordained by the Author of the Universe, and acting through countless ages of time, surely such an issue could but tend to enlighten and exalt our conceptions of creative wisdom.

On the motion of Mr. PAGET, seconded by Mr. TURNER, a vote of thanks was unanimously presented to Dr. Sharpey for his address.

ON THE VALUE OF URINARY ANALYSIS IN THE DIAGNOSIS AND TREATMENT OF HEPATIC DISEASE.

BY GEORGE HARLEY, M.D.,
PROFESSOR IN UNIVERSITY COLLEGE, LONDON.

The author began by saying that, as the practice of medicine is simplified in direct proportion as our means of "physical diagnosis" increase, he was glad to have the opportunity of calling attention to the fact that a knowledge of the condition of the urine is of as great assistance in the diagnosis of affections of the liver as of those of the kidney. Hitherto, the only physical means we possessed of detecting and distinguishing the various forms of hepatic disease did not extend beyond the acquiring a knowledge of the position and size of the liver by percussion, the absence of bile from the stools by inspection, and the presence of biliary pigment in the urine by the application of nitric acid to that secretion. Everyone, however, must have met with cases of obscure hepatic disease where these means of research proved totally inadequate to their requirements. This circumstance has led several practitioners to seek for further aids to diagnosis in such cases; and consequently, at various times during the last few years, valuable suggestions have fallen from different members of our profession both here and abroad. For example, Dr. Eiselt of Prague has called attention to the fact that in cases of melanotic cancer of the liver, the true nature of the affection may be sometimes discovered during life by the presence of melanine in the patient's urine. (A specimen was shown to the members of the Association.) Urine containing melanine, the author said, although of the normal colour when first passed, gradually becomes of a dark hue, even as dark as porter, when left for some hours exposed to the air. This change appears to be the result of a slow oxidation of the pigment. In the second place, Frerichs, in his admirable treatise on Diseases of the Liver, states that two substances, tyrosine and leucine, which were formerly only known to the scientific chemist, are invariably to be found in the urine of patients labouring under acute or yellow atrophy of the liver. Dr. Harley said he had been able to verify this statement in the urine of a young married woman who died from this most fatal form of disease. Dr. Wilks, he stated, had brought the case under the notice of the Pathological Society, and a report of it would be found in the "Transactions." Dr. Harley mentioned an interesting case of chronic atrophy of the liver, the result of obstruction from disease of the pancreas, in the urine of which he found both tyrosine and leucine. He had seen the gentleman several times along with Mr. Prance, and they noticed that as the disease advanced the quantity of the abnormal ingredients increased. After death, crystals of tyrosine were found in the liver. Dr. Harley recommended that in all cases of obscure hepatic disease these substances should be looked for; and said that in the majority of cases they were readily detected in the concentrated urine by means of the microscope. The tyrosine appears as needles and little stars; the leucine as round yellow balls, some of which are occasionally spiculated.

The author next proceeded to direct attention to the method he had recently laid before the profession of distinguishing between jaundice arising from suppression and jaundice the result of obstruction—two forms of disease so ably described by Dr. Budd. As the treatment of jaundice from suppression ought to be very different from that adopted in jaundice from obstruction, it is of essential importance to be able to distinguish the one from the other. After alluding to the great differences of opinion that have hitherto existed regarding the presence of the biliary acids in the renal secretion in cases of hepatic disease, the author pointed out how the discrepancies arose from the fact that sufficient attention had not been paid to the kind of jaundice under which the patient laboured. He said he believed that where bile acids occurred in the urine in any quantity, their presence might be regarded as a certain sign of the existence of some obstruction in the course or at the termination of the common bile duct. Dr. Harley then proceeded to demonstrate, by experiment, how easy it is to detect the bile acids in the urine by means of strong sulphuric acid and a small piece of white sugar. The sulphuric acid was so added as not to mix with the urine; the sugar floated at their line of contact, and after some minutes assumed a purple hue. In the urine containing no bile acids the sugar was simply browned.

Dr. THUDICHUM said, the author had ascribed the doctrine he had propounded to Prof. Frerichs. He, however, only watched the patients clinically; it was another physiologist who made the examinations, and discovered tyrosine and leucine. The disease in question was dogmatically termed atrophy, but he (Dr. Thudichum) as dogmatically objected to that term, for he had seen cases where the liver was certainly enlarged about one-third its ordinary size; and in one case, brought under his notice by Dr. Richardson, it was doubled in size. In some cases, so far from the liver being atrophied, it was hypertrophied. An excellent test was to put a drachm of the solution of the nitrate of mercury to the urine; the urine being then boiled, the white precipitate produced would be transformed into a dark purple colour, and the solution itself would assume a partly purple colour.

IS ALCOHOL FOOD?

BY THOMAS INMAN, M.D. (LOND.),
PHYSICIAN TO THE LIVERPOOL ROYAL INFIRMARY.

The author first devoted a few words to definition, stating that by "alcohol" he intended to comprise those liquors in common use which owed their effects to alcohol; and by "food," anything which supplied material by which the body

was nourished. He then adverted to the fact that a saccharine material was found in the blood of all mammals when it entered the lungs, and to the strong probability that a fermentative process took place in those organs, with the extrication of carbonic acid, the actual source of which in the blood had not yet been absolutely ascertained. The close atomic composition of starch and sugar and alcohol *plus* carbonic acid was pointed out; also the fact that the starches &c. and alcohol were often tolerated by delicate stomachs when other ingredients were not tolerated.

The author then shortly summarized the effects of ordinary food, whether animal or vegetable, when taken with water for a beverage and in proper quantity, and compared these with the results following a temperate draught of ale or porter; showing that there was no real distinction between the one and the other, except that the liquid sooner entered the circulation and sooner left it. It was no argument against the use of beef that a man who had dined on it one day wanted a dinner the day after; nor against beer, that a person who had taken one glass was ready for another in a few hours. The prejudicial effects of excessive eating were adverted to, and after mentioning a few instances where guzzling had proved fatal, others were alluded to in which a prolonged lethargy or an apoplectic condition had been induced. The use of beef tea sometimes produced convulsions in infants, but this result did not vitiate the dietetic value of meat. The physical condition of excessive eaters was then spoken of, and it was shown that some were thin, others stout; and that as regarded the moral condition of those who, from choice, religious belief, or necessity, abstained from the use of alcoholic beverages, they were to the full as bad as those who indulged in drink. Cannibals were teetotallers, and neither Nana nor Tippoo was a drunkard. On inquiring into the habits of total abstainers and those who drank ale, wine, &c., the author had ascertained that the former habitually ate much more than the latter; and one of three deductions was necessary: either the former ate too much, the latter too little, or the drink of the one was equivalent to a portion of the food of the other. To ascertain which of these alternatives was nearest the truth Dr. Inman had experimented in his own person, and had made numerous observations through the assistance of friends. The conclusion he came to was that which had been previously insisted on by Mr. Lewes and others,—namely, that alcohol replaced a certain amount of food; and "as things which are equal to the same are equal to one another," he inferred that if a glass of ale was equal to a slice of mutton in its satisfying effect, and that mutton was food, it must follow that ale is food. To say that persons could not live on ale, was of no value as an argument; for no one could live on biscuit alone, though bread was called the staff of life. To ascertain how far it was possible for any one to live on alcohol alone, he had for many years been seeking information respecting drunkards, and he mentioned two—one on the authority of the individual herself (a surgeon's widow), and the other on the authority of the medical attendant, where patients had subsisted for a prolonged period on brandy-and-water alone. He mentioned others on the authority of other medical friends, and two which he had himself been conversant with. He combated the idea of the probability of imposture, inasmuch as in all these cases solid food was loathed excessively, and was generally rejected by the stomach. He then mentioned some cases of children that he had attended, in whom the appetite had failed entirely, where food which was administered by force had been vomited, yet in these alcohol in one form or other gave the support which other food did not, and gradually restored the appetite to its normal state. He noticed, too, that infants at the breast, when ill, would digest brandy-and-water when they would reject all else. The advantageous influence of this fluid was apparent even if it were administered in enemata.

A definite course of induction, irrespective of chemical theory, having ended in the conclusion that alcoholic drinks were strictly alimentary, he shortly referred to the statements which were relied upon to demonstrate the contrary. If alcohol, he said, passed out of the system unchanged, so did water; yet water was absolutely necessary to life. But there was no proof that all the alcohol imbibed in a long symposium ever left the body. He inferred that if it did pass out of the lungs in vapour as largely as was assumed, a party of spirit drinkers would make the atmosphere of a closed room explosive; and he recalled the statement of Pereira, that some northern race had found that two or three people in succession might keep up intoxication with "lolium temulentem" by drinking the urine of the first eater; yet none had discovered that the urinal of a drunkard contained anything equal to gin. But certain foods, as oatmeal, bran, potatoes, oats, &c., were not wholly retained in the system, yet they were alimentary.

Dr. Inman then combated the idea that alcohol was a mere stimulant, by contrasting it with turpentine, cantharides, ginger, cayenne, iodide of potassium, and other drugs, which were stimulants to every part of the body to which they were applied. He argued that alcohol could not simply be a conservator of tissue; for a glass of ale after a long walk would induce plentiful perspiration, and a glass of whisky or gin-and-water acted with most people as a powerful diuretic. Nor could we conclude that it assisted in disintegrating the tissues; for if it did, the use of ale, wine, or spirit must then be antagonistic or antidotal to food, and the winebibber must necessarily require more food than the teetotaller, whose tissues were not disintegrated by artificial means.

He then summed up his conclusions thus:—

1. Nature has provided in the salivary glands, the liver, and the lungs of every mammal an apparatus for converting all food, especially farinaceous, into alcohol; and we have no evidence that such conversion does not take place.

2. One form of alcohol or another is available for the support of life, and for restoration to health when no ordinary food can be or is digested.

3. Alcohol, after being taken, is incorporated with the blood, passes into the various tissues, and ultimately disappears, a small portion only passing away in the breath. We can say no more of bread, potatoes, or oatmeal porridge, a small portion of each of which passes out of the body with the fæces.

4. Alcohol, in the form of ale, porter, wine, &c., relieves hunger and quenches thirst simultaneously, and with a completeness that is not equalled by water, infusion of gentian, cayenne pepper, or by turpentine—i. e., it does not act as water simply, or as a stimulant alone.

5. Wine, beer, &c., satisfy the appetite when taken alone, and act for the time like any solid food would do.

6. When alcohol is mingled with other food, a less amount of the latter suffices for the wants of the system than if water had been used as the drink.

7. The various forms in which alcohol is taken have as marked and specific effects as have animal and vegetable articles of diet.

8. Individuals have subsisted wholly upon one or other of the various forms of alcohol in common use for periods of great length; and as it is illogical to conclude that they must have lived on air, without food, or on flies like chameleons, the conclusion is irresistible.

What that conclusion is, it might be left for every thinking man to decide.

ON THE EMPLOYMENT OF THE VERATRUM VIRIDE IN THE TREATMENT OF DISEASE.

BY EPHRAIM CUTTER, M.D., OF WOBURN, MASSACHUSETTS, U.S.A.

The author alluded to the fact that veratrum viride is indigenous to North America. The best preparation is that of the tincture of the root—four ounces to the pint of alcohol, specific gravity 0·917; the doses of which are as follows:—

Adults, 7 to 10 minims,	}	Every two hours,
Children, 3 to 5 minims,	}	or
Infants, ½ to 1 minim,	}	*pro re nata.*

Sometimes, from idiosyncrasy or other cause, the above doses are insufficient; it is then necessary to increase them in quantity or frequency until nausea or vomiting supervenes. The author divided his subject in the following manner:—

1. As a local remedy.
2. As a cardiac sedative.
3. As an arterial sedative.
4. As a nervous sedative.
5. As an emetic, diaphoretic, and diuretic.
6. As a toxicological agent.
7. Its comparative value with agents of the same class.

1st. As a local agent, the veratrum viride root (which only is officinal) is a powerful sternutatory and errhine. The author has employed it thus where there was dryness and swelling of the Schneiderian membrane, with the effect of establishing the secretion and clearing the passages. In the form of ointment, combined with sulphur and lard, Dr. Workman, of Worcester, (Mass.,) stated that he succeeded in completely removing chronic prurigo, which had resisted various other remedies. In the form of cataplasm the root has been prescribed for ulcers of the leg, mastitis in puerperal women, and swollen rheumatic joints. It more accords with the times to use lotions of the diluted tincture or of the decoction. Besides, in the cases men-

tioned, it is thus employed as a stupe to the abdomen in peritoneal irritation or inflammation.

2nd. As a cardiac sedative. This term is employed for therapeutical convenience. Palpitation, irritability, and tumultuousness of the heart, also hypertrophy, valvular lesions, rheumatic and simple inflammation, are mentioned as to be treated under this head. Internal aneurism, haemoptysis, and headache from excited circulation may come in therapeutically here. Sometimes in cases of organic disease the author has noticed a relief to the *feelings* of the patient, even when the pulse was not reduced. It should be given three times daily in full doses.

3rd. As an arterial sedative, the veratrum viride is employed in affections characterized by febrile symptoms of sufficient intensity to be interfered with. It lowers the pulse, respiration, and heat of surface. It does not destroy the inflammation, but so restrains the violence of its action as to render the progress of the disease milder, the comfort of the patient greater, and ensures a better convalescence and recovery, from the fact that the vital forces are husbanded. It is not given to the full depressing point of the medicine. The diseases enumerated as coming under this head are—acute bronchitis, pleurisy, pneumonitis, rheumatism, tuberculosis; typhoid, typhus, and eruptive fevers; fevers resulting from surgical operations, burns and wounds, colitis. Full dose every two or three hours, keeping within the nauseating point.

In case the above complaints are of a very severe type, it is advised to push on in full doses, once an hour or half-hour, until the full effects are produced, such as vomiting, coldness and paleness of surface, a very marked reduction in the frequency of the pulse and respirations, diaphoresis, dinresis, and nervous symptoms of prostration, &c. It is claimed that thus all the good effects of depletion can be produced without the loss of a single blood-corpuscle. It can be persisted in as long as it is indicated; bleeding cannot. Again, in rheumatism, with the veratrum viride there is no danger of metastasis to the heart.

4th. As a nervous sedative, it may be employed in chorea, convulsive affections, and acute mania. It would seem adapted to these diseases *à priori*, from its physiological powers in numbing and stiffening the muscles. It is not narcotic. But opinion is divided on this point. Those who have experienced its full powers report no clouding of the brain. Sleep has been induced by it simply by allaying the excitement of the nervous symptoms. Still opiates are given with it.

5th. As an emetic, diaphoretic and diuretic, it is not much used. There are other agents better adapted to produce emesis. The diaphoretic effects are noticed among the full effects; hence the veratrum veride would not be desirable in this respect. As a diuretic, physicians have noticed its effects somewhat, but the only well-attested observation was by Dr. S. W. Abbott, U.S., who, in health, under the veratrum viride, found his urine increased from 25·5 to 3› ounces in a day, and the specific gravity lowered from 1024 to 1020.

6th. As a poison. A fluid drachm is the largest dose of the above tincture known to have been taken. It was done by mistake. The effects were severe, but were not fatal. No doubt it is possible to overwhelm the action of the pneumogastric nerve by continuing the administration in over-doses, but no well-authenticated case of poisoning has come to the knowledge of the writer. Alcoholic stimulants and opiates, freely given, are the best antidotes.

7th. Compared with veratrum album, it rarely purges. It is prompter than digitalis; less permanent in its effects than antimony.

Veratrum viride was commended by the author as worthy of trial. Reference was made to the mode of introduction, having been tested by medical societies in America regularly. It was thought that the status of medical science would be raised by the contemporaneous testing of all drugs by medical associations in their united and individual capacity.

Dr. CUTTER also alluded to

THE AMERICAN METHOD OF APPLYING EXTENSION IN THE TREATMENT OF MORBUS COXARIUS.

He spoke of two splints in particular—those of Dr. H. G. Davis and Dr. Lewis A. Sayre, of New York. The first consists of a metallic tube, from half to three-quarters of an inch in diameter, slightly curved at one extremity, long enough to reach from the external malleolus process to the great trochanter of the femur. At the lower end is a thimble attached, but capable of being moved round and round. On the inside of this thimble is cut a female screw, into which fits a male screw, cut on a smaller tube of more than half the length of the first. Upon moving the thimble the splint is lengthened or shortened. The perineal strap is made of elastic and inelastic webbing, one over the other, attached by means of rings to catgut, which freely plays over a pulley in the upper part of the splint. The remaining features are, strips of machine-spread adhesive plaster, which are from an inch and a half to two inches in width, and long enough to reach from the external malleolus to the great trochanter, and from the internal malleolus to the pubis. Other strips cross these diagonally. When heated and applied, they are covered-in by a roller bandage. The lower end of the outside strip is attached to the distal extremity of the splint when the perineal strap has been fitted to the groin. The thimble is then turned, and extension made. This splint may be shortened so as only to reach to the knee joint, when the patient's thigh is large enough to afford space to apply sufficient plaster. At night the splint may be removed, and extension effected by means of a weight (from five to twelve pounds) attached by means of cord and pulley to the inner and outer adhesive strips. In case the thigh is flexed upon the trunk, this latter method is adopted until the limb is brought down to a line with the body: then the splint is employed. Dr. Davis has employed these principles of extension for fourteen years. He deserves the greatest credit for his idea.

The splint of Dr. Sayre embodies the same ideas; but his perineal strap is made of india-rubber tubing, rings, and catgut. His splint is made of two strips of hemi-cylindrical steel, fitting one into the other, extended by means of a racket and key; the outer portion at the upper part is expanded into the form of the bowl of a spoon; here, by an ingenious mechanical contrivance, is attached the perineal catgut. When the splint is shortened to the knee-joint, Dr. Sayre springs from the inner strip of the splint a bridge of steel over the thigh, to afford a point of attachment to the inside adhesive strip.

Allusion was made to this subject on account of the frequency of the disease and the desirability of cheap apparatus.

Dr. Cutter did not feel at liberty to show the splints, from the fact that he had no authority from the inventors. He would, however, most earnestly recommend them from practical experience.

The PRESIDENT, referring to the subject of the proposed religious services in connexion with the Association, said the Council were very desirous to avoid the inconvenience and unpleasantness that would arise from anything like a religious discussion, and had therefore recommended that the subject should not be brought forward at the present meeting.

Dr. OGLE said, as he had been asked not to press the resolution which he was about to bring forward, he desired to place himself in the hands of the President of the meeting.

The motion was then withdrawn. Dr. RICHARDSON also withdrew an amendment to be proposed upon the resolution.

Dr. STEWART said he should consider himself free to bring forward a similar motion to that of Dr. Ogle's next year. The Association were only adjourning a question which it would have to decide some day or other.

The PRESIDENT stated that a letter had been received from Dr. Hodgkin, submitting the following resolution:—"That the British Medical Association desires, in the most courteous manner, to express to the General Medical Council the hope that the proposed alteration of the weights to be used in medicine may not be carried into effect, but that they may be allowed to remain as they now exist, unless the Council, with the sanction of the Government, is prepared to introduce the metric system already adopted with great advantage by many other countries." The subject, the President said, was at the present moment under the consideration of the Medical Council, who had submitted the question to various scientific men, whose opinions they expected shortly to receive.

The motion was proposed by Dr. Martin, and seconded by Dr. Webster, but at the request of the President was withdrawn.

Dr. GIBBON then brought forward the following resolution:—"That it be referred to the General Council to consider what steps, if any, this Association can take to suppress the ever-increasing evil of gratuitous medical service as given to most of our public hospitals and dispensaries." No notice having been given of the motion, it was not entertained, and Dr. Gibbon intimated his intention of bringing it forward on another occasion.

Sir CHARLES HASTINGS proposed a vote of thanks to the President and Fellows of the Royal College of Physicians, for their kindness and courtesy in allowing the members the use of their College, and entertaining them at a *soirée*. He complimented the College of Physicians on the zeal it had shown

in the advancement of the interests of medicine and of the profession, especially eulogizing the President, Dr. Burrows, for the part he had taken in the reforms that had been carried out.

Mr. PAGET, of Leicester, seconded the resolution, which was unanimously adopted.

Dr. WEBSTER proposed a vote of thanks to the Royal College of Surgeons for the honour conferred upon the members of the Association by receiving them at a *conversazione*.

Mr. PROPERT seconded, and Dr. STEWART supported, the vote of thanks, which was unanimously adopted.

Dr. CONOLLY proposed a vote of thanks to the President, which was seconded by Dr. RICHARDSON, and unanimously adopted.

The PRESIDENT acknowledged the vote of thanks, and the proceedings terminated.

CORRIGENDA in our report of Mr. Paget's address in Surgery:—

p. 158, col. 2, line 16 from bottom, *for* "fate" *read* "faith."
p. 159, col. 2, line 8 from bottom, *for* "pride" *read* "fright."
p. 160, col. 1, line 34, *for* "aware" *read* "sure."
p. 160, col. 2, line 28 from bottom, *for* "common" *read* "perilous."
p. 160, col. 2, line 18 from bottom, *after* "I am" *insert* "not."
p. 161, col. 1, line 1, *for* "attend" *read* "are attended with."
p. 161, col. 1, line 42, *after* "may" *insert* "not."
p. 162, col. 1, line 33, *for* "causes" *read* "cases."
p. 162, col. 1, line 28 from bottom, *for* "speculative" *read* "subjective."
p. 163, col. 2, line 22, *for* "brought" *read* "bright."

Correspondence.

"Audi alteram partem."

THE BRITISH MEDICAL ASSOCIATION AND ITS "JOURNAL."

To the Editor of THE LANCET.

SIR,—Fully coinciding with the opinions you expressed in a leading article in the last number of your journal on the above subject, I beg leave to tender you my thanks for its publication. I have been a member of the Association from its commencement, and can bear my testimony to the injurious effects which the *Journal* has exerted upon our Society. I have reason to know that there are very many members of the Association who participate in my views. The fact is, our weekly print, which is in every respect unworthy of us, has kept us in a state of insolvency. It has not only exhausted our funds, but we have been repeatedly called upon for contributions to sustain its unnecessary existence. It has moreover given rise to more discussion and disagreement amongst the members of the Association than half-a-dozen such rickety bantlings would be worth. I am at a loss to understand upon what grounds the Council congratulate themselves and us on what they are pleased to call "a favourable financial report." I am old enough to remember a Chancellor of the Exchequer whose *soubriquet* was "Prosperity Robinson," afterwards "Goosey Goderich." He obtained these distinctions from the circumstance of his always announcing "a favourable state of the national finances." A deficiency with him was a source of satisfaction, and he congratulated the country upon the fact. Our financial committee seem to have taken a lesson from the good-natured but over-sanguine Chancellor. Let us examine the statement issued by them at the last annual meeting. The receipts are stated to be £2820, the disbursements £2713; out of this large sum the *Journal* has cost us £2525, whilst all the other expenses of the Association are included in the modest sum of £186!! But surely this is not altogether a correct statement of our position, for it appears that we have liabilities somewhat exceeding £666. It is true that our assets to meet this claim are placed at the handsome figure of £907. But let me ask in sober seriousness upon what grounds the finance committee include among the assets £500 due for subscriptions? Is not this £500 the very sum which ought fairly to have been included among the bad debts of the Association? I may be in error in supposing this to be the case, but I with some hundreds of my fellow-associates shall be glad to be convinced of the error. Looking, however, at the past reports of the financial committee, I am not sanguine as to the result. It has been too much the custom with them to place amongst our assets lapsed or lost subscriptions. It can hardly be said that I use too strong language upon this point after the discussion which took place at the College of Physicians on the power which we possessed over our debtors. I am not about to defend or even to apologize for the conduct of those who are mean enough to remain members of an Association to which they contribute nothing. I am dealing merely with the balance sheet of the Association. As it is presented to us without explanation, it can only be assumed that, instead of having a balance of £240 in hand, we are actually in debt to a considerable extent,—and this for the support of what you have aptly termed our "lean and melancholy periodical." From the first I have been opposed to the contributions of the paying members of the Association being devoted to the support of this miserable undertaking; and the Council may take my word for it, that if they again send the begging-box round, the sum contributed to "*Journal* expenses" will be far less than it has been on former occasions. As one of the original members of the Association, I am deeply interested in its welfare, and I offer these remarks in a spirit of kindness and of caution. I am fully convinced that the *Journal* inflicts upon us most serious evils; it not only exhausts our finances, but is a continual source of annoyance and disgust to the members. I would wish to see our Association carry out legitimately the objects for which it was established; to act as a bond of union between a large number of members of our profession of all ranks and in every part of the British Empire; to exert its influence in the maintenance of the rights and privileges of medical practitioners, and to elevate their social and political status. It can never effect these objects so long as it is kept in a state of insolvency by supporting a journal which has neither social nor political power. Were the large funds at our disposal dedicated to the legitimate purposes of our Society, how efficient they would be in placing the practitioners of medicine in that position to which they are so justly entitled!

I am, Sir, your obedient servant,

AN ORIGINAL MEMBER OF THE BRITISH MEDICAL ASSOCIATION.

August, 1862.

INDIAN HILL STATIONS.

To the Editor of THE LANCET.

SIR,—In your issue of the 2nd inst., p. 128, I observe a lette from the Secretary to the Principal Inspector-General, Madras Medical Department, calling in question the accuracy of some figures quoted by me in my opening address at the Army Medical School in October, 1861. In that address I stated an opinion—long held by me—that the hill stations of India are better adapted to *maintain* than to *restore* the health of the British soldier. I gave a brief *resumé* of the arguments for and against the quartering of a considerable number of the European troops on hill stations; and stated my belief that unless this measure be adopted, the time will come when it will be found too great a strain on the recruiting powers of this country to maintain 80,000 British soldiers on the plains of India: an opinion, I may add, held quite as strongly by Sir Ranald Martin, as well as by some of the most eminent statists in this country. In support of my argument I stated, on the authority of a medical officer who addressed me on the subject from the Neilgherry Hills, that the death-rate of the 3rd Battalion of the 60th Rifles, quartered at Wellington during one of the years of their tour of duty there, was a fraction over 2 per 1000 of strength; and I contrasted this with the mortality in the 1st Battalion of the Royals quartered at Secunderabad, which I had been on equally high authority assured amounted during eighteen months to 300 men. Mr. Cornish, from official documents in his office, shows that the mortality was greater at Wellington and less at Secunderabad than I had stated it; but even on Mr. Cornish's own showing, it appears that in 1858–59 the strength of the 1st Battalion of the Royals at Secunderabad was 1146; the admissions from all diseases, 2194; deaths, 108; sick to strength per cent., 191·4; deaths to strength per cent., 9·4. While in the 3rd Battalion of the 60th Rifles quartered at Wellington Barracks on the Neilgherry Hills in 1858–59, the strength was 1137, the admissions 1037,

and the deaths 10; sick to strength per cent., 91·2; deaths to strength per cent., 0·8.

It will be allowed that the contrast is striking; but figures of this sort only tell the truth in part: they take no account of the comparative gravity of the diseases in the stations thus contrasted. None know better than Mr. Cornish that a vast number of the men discharged as *cured*, after suffering from the formidable types of tropical disease prevalent at Secunderabad, have their constitutions so injured that in a few years they disappear from the effective strength of the army. I am quite aware that Secunderabad, like most other places, enjoys some years of exemption from epidemic visitations; but, this notwithstanding, the loss from death and invaliding in the old infantry barracks there during nearly half a century has been so enormous as to give them an infamous notoriety wherever British military statistics are known and studied. The advantage or otherwise of placing European troops in such a climate as that of Wellington on the Neilgherry Hills, is not to be determined by contrasting the mortality rate for one year, or a limited number of years, between a regiment quartered there and in any other single station. What, in common with many high authorities, I insist on is, that by quartering as large a portion of our European regiments as possible on mountain ranges, the health of the men will be maintained, their constitutions will in a great measure escape the deteriorating influences to which even in the healthiest years they are exposed on the plains, and that thus many valuable lives will be spared, and an enormous saving in money effected. It must be borne in mind, that sanitary regulations of the strictest kind are as necessary on hill stations as elsewhere; and the young medical officers trained in the Army Medical School know well that this lesson has been much insisted on by my colleague, Prof. Parkes, and myself; and it is notorious that one reason why a prejudice was excited in the minds of the authorities against mountain ranges in India was the sickness and mortality caused by the flagrant neglect of sanitary police regulations, and this not at Wellington only, but in most of the Bengal hill stations, as has been well shown by my able friend, Dr. Alex. Grant, of the Bengal army.

With regard to the rumour noticed in your leading article of the 22nd of March last, on the proposed abandonment of the barracks at Wellington, and giving them up for other purposes than those for which they were intended, I can give my testimony to the fact that such a report prevailed at the time in circles usually well informed on such matters, and no small uneasiness was thus excited in the minds of those who are interested in this important question.

I am, Sir, your obedient servant,

W. C. MACLEAN, M.D.,
Deputy Inspector-General, and Professor Army Medical School.

Fort Pitt, Aug. 1862.

CHOLERA IN INDIA.

To the Editor of THE LANCET.

SIR,—In THE LANCET of the 28th ult., Dr. Macloughlin writes, in reply to the letter of "An Indian Medical Officer" of May 17th, on the above subject. I can, with great confidence, bear out the statement of Dr. Macloughlin, that no case of cholera occurs but is preceded by diarrhœa. In the year 1854 I had frequent opportunities of seeing cases in this country, and, with one exception, I could always trace diarrhœa to have been for some time present. The general statement given by the patients' friends was, that for some time they were troubled with looseness of the bowels, but being free from pain, were not alarmed, though the evacuations were watery and copious, giving to the patient the sensation as if water was passing through a tube, with a general coldness over the abdomen, and repeated calls to stool. When such, as in many instances, occurred, and no attention was paid, exhaustion, vomiting, and cramps soon followed, and it was only then that the medical officer was called. In many cases the time lost was never recovered; exhaustion had gone too far; the deep prostration of the patient could never be retrieved, and death soon came to terminate his sufferings. The medical officers, finding that all the cholera cases under their charge were preceded by diarrhœa, impressed upon the inhabitants the necessity of having medical attendance on the slightest indication of diarrhœa showing itself, and it was only then that a marked decrease of the attacks and deaths took place, thus proving that cholera was curable when taken early. Though unable to speak personally as to how it attacks the patient in India, yet from the symptoms given, it seems to be the same as here. Let the medical officer in charge on its first outbreak make the men attend to the state of their bowels, for it is owing to the absence of pain (though the copious evacuations alarm a little) that no fear is entertained until cramps and vomiting and deep exhaustion show themselves, and then the medical officer is sent for. Cause them to apply to the officer in charge, and let the diarrhœa be checked, and what would have become an undoubted case of cholera will terminate in diarrhœa, and that fearful and alarming disease will, by hygienic management, pass over the camp with less mortality than it would otherwise have done.

I am, Sir, your obedient servant,

July, 1862. JOHN GRAHAM, Surgeon.

THE DETERMINATION OF URIC-ACID CALCULI.

To the Editor of THE LANCET.

SIR,—A small calculus, weighing between five and six grains, was recently placed in my hands by my friend Mr. J. R. Carter, of Chapeltown, who wished to know its composition. Chemical analysis showed it to be uric acid, with a trace of urate of lime. Now the determination of uric acid by solution in nitric acid, evaporation, and purple reaction when ammonia is added, is an experiment which with a minute quantity for the operation would be very likely to fail in the hands of a person not experienced in such matters.

We have not many authors in the department of animal chemistry, and I do not know of any work treating morbid concretions more fully than does "Simon's Animal Chemistry." The standard works on urinary deposits do not include the analysis of calculi; and although it is probable that some accomplished microscopists have applied the microscope to the purpose, its use in such cases is not general.

In the present instance, I took a most minute fragment of the calculus, about the one-thousandth of a grain, and added it to a small drop of liquor potassæ upon a slip of microscopic glass. It dissolved when a small drop of acetic acid was brought into contact, and a perceptible precipitate marked their line of junction immediately. The thin cover being placed over the object, it was viewed by the quarter-inch power, but only exhibited an amorphous deposit. In five minutes, however, this granular matter had given way to thousands of characteristic crystals, any one of which would be enough to decide the presence of uric acid.

This micro chemical test can be applied more rapidly, and with far less trouble and uncertainty, than the purely chemical one. It appears to me to resemble Dr. Guy's microscopic determination of arsenious acid, as being a process exceeding in delicacy some of the chemical ones now in use, and therefore as deserving to be used conjointly with chemical tests. Of course the condition of the uric acid, whether free or with what base united, is a question left equally untouched by the chemical and micro-chemical processes now compared.

I am, Sir, yours respectfully,

Leeds, July, 1862. R. REYNOLDS, F.C.S.

MR. SOLOMON AND INTRA-OCULAR MYOTOMY.

To the Editor of THE LANCET.

SIR,—The old story of Columbus and his egg is continually being repeated in everyday life. We ourselves, indeed, often find a thing very easy when once we have been shown how it is to be done. This thought forcibly recurred to me when reading in last Saturday's LANCET Mr. Solomon's paper "On the Relief of Near Sight without Spectacles," and the description he gives of a new operation, which he calls *intra-ocular myotomy*. This is, however, I find, none other than division of the ciliary muscle as usually performed, and for the very purpose that Mr. Solomon so gravely sets forth as being new in ophthalmic surgery. But this is not all; for Mr. Solomon himself was first shown the operation some three years ago at the Royal Westminster Ophthalmic Hospital by Mr. Hancock, to whom we are really indebted for the introduction of division of the ciliary muscle, and who, I am in a position to prove, took some pains to explain to Mr. Solomon its various uses in the relief of eye-diseases, not omitting myopia. There is therefore something more than mere want of candour in Mr. Solomon not giving credit where credit he knows is due.

I am, Sir, your obedient servant,

Bedford-square, August, 1862. JAMES HOGG, M.R.C.S.

Medical News.

APOTHECARIES' HALL.—The following gentlemen passed their examination in the Science and Practice of Medicine, and received certificates to practise, on the 7th inst.:—

Foster, John Edwin, the Oaks, Harrogate.
Harries, Gwynne Henry, Haverfordwest.
Jones, John, Drury-lane.
Leadman, Alexander, Leeds, Yorkshire.
Milligan, Percy, Keighley, Yorkshire.
Orton, Charles, March, Cambridgeshire.

The following gentlemen also on the same day passed their first examination:—

Carrag, Griffith Llewelyn, Queen's College, Birmingham.
Snell, Ebenezer, Middlesex Hospital.

UNIVERSITY OF ABERDEEN.—At the late Graduation Term, the following candidates, after the usual examinations, received degrees in Medicine and Surgery, making the total number during the year twenty-eight—viz.:

DEGREE OF M.D.

Manson, David (honourably distinguished).
Gauld, William.
Grant, John.

DEGREE OF M.B.

Fairweather, Alexander Ferrier Angus.
Leslie, David Arthur.
Murray, James.
Smart, Charles.

DEGREE OF M.C.

Manson, David (honourably distinguished).
Fairweather, Alexander Ferrier Angus.
Gauld, William.
Grant, John.
Leslie, David Arthur.
Murray, James.
Smart, Charles.

At the same time, the following were declared to have passed part of their examinations:—

Alexander, Charles.
Andrew, George.
Buchan, Charles.
Collie, Alexander.
Collins, Robert.
Davidson, James.
Eadon, John.
Elmslie, William J.
Evans, Owen.
Fowler, James E.
Fropier, F. G.
Grant, James A. S.
Gray, Edward.
Harmer, William M.
Johnston, Alexander.
Kemp, Robert Davidson.
M'Lean, William.
M'Leod, John B.
M'Robbie, John S.
Manson, Patrick.
Morrison, William F.
Ross, James.
Skeen, Andrew.
Smith, James Dear.
Walker, Robert.
Yeats, George.
Young, David.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS, EDINBURGH: DOUBLE QUALIFICATION.—The following gentlemen have passed their First Professional Examinations during the recent sittings of the Examiners:—

Dickson, George, Edinburgh.
Ford, Wm. Bentley, Waterford.
Jamieson, James, Bowden.
Johnstone, John, Liverpool.
Macdonald, George, Perthshire.
Macgregor, Alex. J., Perthshire.
Moffatt, Paul, Northumberland.
M'Caul, James, Edinburgh.
Robertson, Schoedde, Co. Westmeath.
Stewart, John, Berwickshire.

The following gentlemen have passed their Final Examinations, and been admitted L.R.C.P.E. and L.R.C.S.E.:—

Barry, Wm. Sealy, Knockura.
Johnson, Edward, Calcutta.
Kennedy, W. J., Londonderry.
Morehouse, J. B., Holmfirth.
Macnab, Wm., Co. Derry.
M'Keogh, J. J., Co. Tipperary.
Stobie, Robert, Orkney.

ROYAL COLLEGE OF SURGEONS, EDINBURGH.—The following gentlemen have passed their First Professional Examinations during the recent sittings of the Examiners:—

Anderson, A. M., Tummelbridge.
Carlie, John, Dunfermline.
Cowper, Stewart, Coatbridge.
Fleming, Joseph, Co. Donegal.
Hammond, Gordon, Brechin.
Millar, John, Edinburgh.
Macdougall, John, Glasgow.
Walker, William, Ayrshire.
Watson, James, Edinburgh.

The following gentlemen have passed their Final Examinations, and obtained the diploma of Licentiate of the College:—

Allison, Alex., Strathhaven.
Buckley, John, Cork.
Hill, James H. G., Bengal.
Hardie, James, East-Lothian.
Lorraine, W., Dumfriesshire.
Muirhead, W. M., Edinburgh.
Newett, Robt. H., Co. Louth.
Ryley, John R., Waterford.
Skae, Chas. H., Edinburgh.
White, Peter, Haddington.

LECTURES ON MEMORY.—Dr. Edward Pick, whose lectures on memory have obtained such deserved popularity in the metropolis, Oxford, and other places, has left London for the purpose of lecturing at Leeds, Scarborough, and other English towns, and also at many of the principal towns of Scotland.

NEW VISITING COMMISSIONERS IN LUNACY.—Dr. Hood and Dr. Bucknill are appointed Visiting Physicians to the Court of Chancery under the recent Act of Parliament.

THE SEAMEN'S HOSPITAL.—In addition to other liberal benefactions made by his Highness the Viceroy of Egypt during his stay in this country, he sent a donation of £100 to the Seamen's Hospital, *Dreadnought*.

INFLUENCE OF ANTIMONIAL CHOLERA ON THE PROGRESS OF TYPHOID.—In a case of typhoid M. Beau produced an attack of antimonial cholera, which had the effect of immediately checking typhoid fever, under which the patient was suffering.

CONFLICTING MEDICAL TESTIMONY.—Last week a case was tried in which a person sued the Brighton Railway Company for injuries received by him in the Clayton Tunnel accident. The medical evidence was of so conflicting a character as to call forth some severe remarks from the presiding judge.

TESTIMONIAL.—An address, accompanied by a valuable watch and chain, has been presented to Dr. Cronin on his appointment to the post of Assistant-Physician to the Rotundo Hospital, Dublin.

OZONE.—Mr. Glaisher, in his report of the balloon ascent from Sydenham on the 30th ult., says that the test ozone papers were not coloured. Nor was there any ozone noticed in the ascent from Wolverhampton.

HOSPITALS IN MEXICO.—The necessities of the Mexican Government are so pressing that they have enormously overtaxed all kinds of property, not only of private individuals, but of public institutions. A decree has been issued for the *nationalization*, as it is called, of hospitals and other charities, which is in effect a decree of confiscation.

ANNIVERSARY OF THE BATTLE OF THE NILE.—Among the very few surviving officers who served on that occasion, and have lived to see its 64th anniversary, (Aug. 1), we are glad to find the name of Surgeon George Bellamy, M.D., who served as such on board the *Bellerophon*.

NAVAL HOSPITAL AT CHATHAM.—On Wednesday, the 31st ult., the Lords of the Admiralty visited the Naval Hospital at Melville, and, accompanied by Deputy Inspector-General C. R. Kinnear, M.D., inspected the wards, and expressed themselves generally satisfied with the excellence of the arrangements for the accommodation of the inmates.

MILITARY HOSPITAL AT WOOLWICH.—General Sir Richard Dacres has succeeded in organizing an hospital at Woolwich for the necessities of the wives and children of the soldiers in cases of sickness and accident. The hospital is now thoroughly established. It is supported chiefly by subscriptions from the officers of the garrison.

LYING-IN HOSPITAL AT LIVERPOOL.—The new Lying-in Hospital, situated in Myrtle-street, opposite the Philharmonic Hall, was opened on the 24th ult. by the Lord Bishop of Chester. The building, a very handsome structure from the design of Mr. J. D. Jee, cost upwards of £3000, and is capable of accommodating forty patients, as well as the necessary staff.

THE ARMY MEDICAL SCHOOL is now paying the greatest attention to the bodily development of candidates for the army and their training. Professor Aitken delivered an address on the opening of the fourth session, in which he pointed out the importance of adapting the amount of labour and exercise to the degree of development of the body. The researches of medical science are beginning to exercise the most beneficial influence on the formation of our army.

THE REJECTED CANDIDATES.—The Madras Government have reversed the decision of the home authorities in the case of Mr. Thompson, an Anglo-Indian, and Pandey, a native, who were not allowed to enter H.M.'s medical service, after having been induced to come to England to compete for the Indian service. Both have been appointed sub-assistant surgeons without examination, and will do duty in the vaccination department.

MEDICAL MISSIONS.—For the last twenty years a Society of medical men has been engaged in Edinburgh in educating and sending forth medical missionaries to foreign parts; but no organization for a similar purpose has existed in England. The recent session of the British Medical Association in London has furnished an opportunity of laying before the English members of the profession the claims of Christian missions among the heathen upon medical men. With this view a meeting of the Christian Medical Association was held at St. James's Hall on Thursday, the 7th instant, under the presidency of the treasurer, R. D. Grainger, F.R.S.; and the

members of the British Medical Association were invited to be present. The supremely beneficent character of such missions to the ignorant and the sick poor in heathen countries, and their influence in disposing the people to receive the facts and doctrines of Christianity, were shown in a brief address by David Paterson, Esq., a medical missionary at Madras. At the close of the meeting a committee was directed to arrange and carry out a plan by which the profession in England might contribute to the spread of Christianity by means of medical missions.

A QUACK DOCTOR AND HIS PRIVATE BUSINESS.—At the Middlesex Sessions on the 8th inst., Henry Walton, *alias* Henry Spiller, known as "Dr. Walton," was indicted for keeping a brothel in Castle-street, Leicester-square. From the evidence adduced, it appeared that the defendant kept a surgery, or an imitation of one, at 77, Castle-street; but it was the regular resort of old men, who picked up and decoyed young girls—some not older than twelve years of age—to his place, who were called "patients," the prisoner receiving the profits of this nefarious traffic. The real character of this so-called surgery was proved beyond all doubt by the evidence of the police. The defendant was found Guilty, and the Assistant Judge, who concurred entirely in the verdict, sentenced him to hard labour for twelve calendar months, to pay a fine of £20, and further to be kept in prison until the fine be paid.

"ANONYMOUS."—On the 24th ult., a gentleman called at the Charing cross Hospital, and inquired of the porter whether some money which he had just put into one of the collecting boxes would be safe. Having been assured it would, he immediately went away. On the same day a friend of the institution, walking past the box, saw something in it. On applying his pen-knife carefully he extracted twenty-two £10 notes. Having taken them into the hospital, and informed the resident officers of the circumstance, the box was examined, and three more found, making a total of £250 thus freely and anonymously contributed to its funds.

THE AUSTRIAN GOVERNMENT AND ROKITANSKY.—This distinguished physician has just been raised to the rank of Aulic Councillor, and received on the occasion the congratulations of his colleagues. In his answer to the discourses delivered, Rokitansky stated that he considered the honourable distinction just conferred upon him as affecting the medical profession at large; and added that this very useful body had strong claims to such rewards. The Austrian Government had, however, been very sparing in the bestowal of such distinctions, as no Professor of Medicine, since the time of Peter Frank, had been raised to the Councillor's rank.

HEALTH OF LONDON DURING THE WEEK ENDING SATURDAY, AUGUST 9TH.—The number of deaths registered in London in the week that ended on Saturday was 1181. Diarrhœa continues slowly to increase; it was fatal last week in 89 cases. A larger proportion of these occurred in the Western group of districts than in any other metropolitan division. Besides the 89 deaths classed under diarrhœa, 18 were referred to cholera, chiefly "cholera infantum." There were 7 deaths from small-pox in the week, and 55 from measles. Scarlatina, which was fatal in 72 cases, numbered nearly a third part of these in the East division. It carried off 7 children in Kensington. A woman died at the age of 96 years.

The births were—boys, 883; girls, 874; total, 1757.

At the Royal Observatory, Greenwich, the mean height of the barometer in the week was 29·587 in. The reading rose to 29·93 in. on Sunday, and fell to 29·19 in. on Thursday. The mean temperature of the air in the week was 59·7°, which is 2·3° below the average of the same week in 43 years (as determined by Mr. Glaisher). The mean daily temperature was below the average on every day, except Tuesday. The highest day temperature and the lowest night temperature occurred on the same day, viz., Sunday; they were respectively 76·8° and 48·7°. The range of the thermometer was therefore 28·1°, both on that day and in the week. The mean daily range was 19·3°. The difference between the mean dew-point temperature and air temperature was 7·6°. The mean degree of humidity of the air was 78, complete saturation being represented by 100. The wind blew generally from the south-west.

MEDICAL VACANCIES.

THERE is a vacancy for an Assistant-Physician at the University College, or North London, Hospital.

The election of a Resident Medical Officer to the Public Dispensary, Carey-street, Lincoln's-inn-fields, in the place of Mr. Wm. Payne, resigned, will take place on the 28th inst.

A Medical Officer is required for the Gamlingay District of the Caxton and Arrington Union.

The office of House-Surgeon and Assistant-Secretary to the West Herts Infirmary is now vacant.

A vacancy has occurred for a House-Surgeon to the Clayton Hospital and Wakefield General Dispensary, vice Dr. J. D. Moore, resigned.

There is a vacancy for a Medical Officer to the Crowland District of the Peterborough Union.

The office of Visiting Physician to the Cotou-hill Institution for the Insane has become vacant by the death of Dr. Knight.

MEDICAL APPOINTMENTS.

DR. F. C. WEST has been elected one of the Examiners of the Apothecaries Company. He is not a Member of the Society; but the Master and Wardens have availed themselves of their power of selecting a gentleman not so connected with them.

Dr. J. Daniel Moore has been appointed House-Surgeon to the Lancaster County Lunatic Asylum, vice Dr. P. Stark, resigned.

Dr. W. T. Edwards, late Consulting Surgeon, has been appointed Physician to the Glamorganshire and Monmouthshire Infirmary, Cardiff.

Mr. H. Stanley Gale has been elected House-Surgeon to the Stockport Infirmary.

Mr. Walter Barker, of Wantage, Berks, and King's College, London, has been appointed Resident Assistant House-Surgeon to the Stockport Infirmary.

Births, Marriages, and Deaths.

BIRTHS.

On the 3rd inst., at Dudley House, Guildford, the wife of Fred. Dumaresq Ross, L.R.C.P.E., of a daughter.

On the 3rd inst., at St. Margaret's Banks, Rochester, the wife of Frederick James Brown, M.D., of a son.

On the 4th inst., at Montague-place, Russell-square, the wife of A. J. Pollock, M.D., of a daughter.

On the 5th inst., at Ashby-de-la-Zouch, the wife of William Joyce, Esq., M.R.C.S., of twins—son and daughter, the latter still-born.

On the 6th inst., the wife of Edward A. Tyler, Esq., L.S.A., of High-street, Manchester-square, of a daughter.

MARRIAGES.

At Cradock, Cape of Good Hope, in St. Peter's Church, George Grey, M.D., J.P., to Mary Frances, second daughter of the late Rev. Edward Cook, Missionary in Namaqualand, South African Orange River State.

On the 16th ult., at St. George's Church, Hanover-square, Major the Hon. Henry Littleton Powys Keck, of Stoughton Grange, Leicestershire, to Maria Gore, youngest surviving daughter of the late Vice-Admiral Sir John Gore, G.C.B., G.C.H.

On the 28th ult., at Dublin, William Wilson, Esq., M.R.C.S., Medical Officer to the Keadue Dispensary, Assistant-Surgeon 93rd Regiment Roscommon Militia, to Mary, youngest daughter of James Crawford, Esq., of Keadue.

On the 5th inst., at St. Ann's Church, Belfast, Henry Burden, M.D., to Ann, second daughter of Henry M'Cormac, M.D.

On the 6th inst., at St. Marylebone Church, Thos. Wm. Wasdale Watson, Esq., M.R.C.S., eldest son of the late Thomas Watson, Esq., of Bishop's Stortford, Herts, to Margaret Elizabeth Augusta, only daughter of John Burges Watson, Esq., of Nottingham-place, York-gate.

DEATHS.

On the 18th ult., Henry Lawrence, M.D., Justice of the Peace for the Counties of Carmarthen and Pembroke and Borough of Carmarthen.

On the 1st inst., suddenly, Conway Thomas Edwards, Esq., M.R.C.S., of Brompton-row, formerly of Bathenston, Somersetshire, aged 52.

On the 4th inst., at Fordingbridge, Ellen Mary, only daughter of Thomas Beaven Rake, Esq., M.R.C.S., aged 3 years and 4 months.

On the 10th inst., at Atherstone, Warwickshire, David Clarke Thornhill, Esq., M.R.C.S., late of Stratford-green, Essex, aged 31.

Medical Diary of the Week.

MONDAY, Aug. 18	ST. MARK'S HOSPITAL FOR FISTULA AND OTHER DISEASES OF THE RECTUM.—Operations, 1½ P.M. METROPOLITAN FREE HOSPITAL.—Operations, 2 P.M.
TUESDAY, Aug. 19	GUY'S HOSPITAL.—Operations, 1½ P.M. WESTMINSTER HOSPITAL.—Operations, 2 P.M.
WEDNESDAY, Aug. 20	MIDDLESEX HOSPITAL.—Operations, 1 P.M. ST. MARY'S HOSPITAL.—Operations, 1 P.M. UNIVERSITY COLLEGE HOSPITAL.—Operations, 2 P.M. ROYAL ORTHOPÆDIC HOSPITAL.—Operations, 2 P.M.
THURSDAY, Aug. 21	ST. GEORGE'S HOSPITAL.—Operations, 1 P.M. CENTRAL LONDON OPHTHALMIC HOSPITAL.—Operations, 1 P.M. LONDON HOSPITAL.—Operations, 1½ P.M. ROYAL FREE HOSPITAL.—Operations, 1½ P.M. GREAT NORTHERN HOSPITAL, KING'S CROSS.—Operations, 2 P.M. LONDON SURGICAL HOME.—Operations, 2 P.M. WEST LONDON HOSPITAL.—Operations, 2 P.M.
FRIDAY, Aug. 22	WESTMINSTER OPHTHALMIC HOSPITAL.—Operations, 1½ P.M.
SATURDAY, Aug. 23	ST. THOMAS'S HOSPITAL.—Operations, 1 P.M. ST. BARTHOLOMEW'S HOSPITAL.—Operations, 1½ P.M. KING'S COLLEGE HOSPITAL.—Operations, 1½ P.M. CHARING-CROSS HOSPITAL.—Operations, 2 P.M.

To Correspondents.

Dr. William Jones.—In these cases the Coroner must be guided by the evidence adduced before him as to the necessity of requiring medical testimony to determine the cause of death. Should there be facts sufficient to enable the jury to arrive at a just verdict without examining the medical gentleman who was called in to the case, the Coroner would not be justified in putting the county to the expense of medical evidence. Cases of this kind occasionally cause annoyance to the medical attendant—an annoyance unfortunately for which there appears to be no remedy. The Coroner, however, cannot fairly be charged with inflicting it. He is bound to conduct an inquest in such a manner that the public interests may not suffer in any way. He is bound to protect not only the interests of the medical profession, but those of the public.

Erlangen.—It will be impossible to answer the question until the proposed amendments are before us.

A Constant Reader.—The reply appeared in the last number of THE LANCET.

THE MEDICAL REGISTER.

To the Editor of THE LANCET.

SIR,—In THE LANCET of the 2nd instant, p. 122, I observe the following remarks:—"Meantime, in a place like Halifax, with 40,000 inhabitants, it will be remembered that a medical man was nonsuited in a prosecution for fees because no copy of the Register was forthcoming in the whole town."

It is a hardship certainly that a registered medical man, who has already paid smartly for registration, should be further mulcted in the sum of 4*s.* if he would prove the fact of registration in a court of law. The article in your journal from which I quote as above goes on to say, "An attempt is being made to remedy this." Now, it strikes me that a very simple remedy might be found in the following plan:—Let the Registrar be compelled to furnish, on application from a registered person, a certified copy, under hand and seal, of the entry in the Register of that person's name and qualification or qualifications. If not entitled to a copy of the Register gratis, a registered person is at least entitled, in return for his £2 or £5 as the case may be, for such proof of registration.

It may be said that the Registrar's receipt—"received from Mr. So-and-so, £2 for registration"—is sufficient. But it is not so. The qualifications registered ought to be specified, for reasons made obvious by Clauses 31, 36, 37, &c., as well as by certain legal decisions. The proviso at the end of Clause 27, that a certified copy of entry of the name of any person who may have been registered subsequently to the publication of the last copy of the Register is obtainable, is not sufficient to meet the difficulty under discussion, as such certified copies are not obtainable by persons whose names are on the published Register. If even a fee of one shilling were paid for such certified copy, it would, I think, be cheerfully paid; and as these certificates of registration would be in great demand, their issue might add something to the diminishing funds of the Medical Council.

Your obedient servant,
August, 1862. E.

Young Chemist.—The origin of urea is still a *quæstio vexata*. One school, which includes Liebig and Bischoff, regards it as solely the product of the metamorphosis of the nitrogenous tissues; whilst another, supported by Lehmann, Frerichs, Schmidt, and Bidder, maintains that its formation is dependent upon two factors—viz., the amount of assimilated histoplastic or albuminous food and the necessary consumption of the albuminous tissues when the animal is fasting. Dr. Day's Physiological Chemistry may be consulted.

Dudley.—It confers no legal qualification, and cannot be registered.

MORTALITY FROM TYPH FEVER.

To the Editor of THE LANCET.

SIR,—In your journal of August 2nd, I perceive a letter from Dr. Chambers relative to the mortality from typh fever. He states also his success in treatment, and advises the general adoption of the same. Now, really I do not happen to know the meaning of typh fever. Is it meant for an abbreviation of typhous or typhoid fever, or is it for both? Pray enlighten me on the subject. If Dr. Chambers' views of typh fever abrogate the distinction laid down by Dr. Jonner between typhous and typhoid fever, I fear that the medical profession will not be inclined to carry out his kind advice. How very successful his treatment must be! and yet, strange to say, Dr. Jenner, with all his skill, was fain to admit that little can be done, except stimulate, in typhus.

I am, Sir, yours truly,
August, 1862. IGNORAMUS.

Student, (Glasgow.)—There is little fear that women will be admitted to the Doctorate of Medicine in this country. Our correspondent will perceive by reference to the last LANCET that the subject has not escaped our animadversion.

Dr.—The question cannot be answered until the nature of the proposed alterations is made known.

CHRONIC ECZEMA.

To the Editor of THE LANCET.

SIR,—In reply to "W.," wishing a remedy for the above, I beg to state that I have found in my practice very satisfactory results from liq. carb. detergens, an alkaline solution of tar. My son, who has been in the profession many years, and has suffered from this troublesome complaint, and tried a variety of remedies to no purpose, assures me that the remedy is a very successful one, combined with sarsaparilla and arsenic internally. I have a case now under treatment, with decided improvement, and I trust in a few days may be cured.

I am, Sir, yours truly,
Bristol, August, 1862. THOS. FRYER, M.R.C.S.L.

Obstetricus.—According to a good authority, the number of children born to each marriage in England is from 4 to 5; in Germany from 6 to 8; in France from 4 to 5; in Spain and Portugal from 3 to 3. About one marriage in ten in England is unfruitful. We fear, however, that there is some defect in the data from which these proportions have been deduced.

MEDICAL ASSISTANTS.

To the Editor of THE LANCET.

SIR,—Seeing a letter from "A Twelve-Years' Assistant," in your journal of July 26th, on the position of medical assistants, and establishing an Assistants' Club, allow me to say that I approve very much of the plan that gentleman has in view. At the same time I should be glad if he would inform us of the rate of subscription he considers each member ought to pay. The assistants require a Club which principals will unite in upholding. It is an imposition for assistants to have to pay for procuring situations. One medical agent charges £2 10*s.* for an out-door appointment of £100 a year. I shall be glad if the gentleman who has written the letter in THE LANCET will in the next number of your journal give his name and address, and state the plans he has in view. I would suggest that a Medical Assistants' Club be got up by shares of £1 each, payable at 5*s.* every three months. If we could but get 500 members to join such a Society, we should soon be able to take a suitable house. Of course the Club should be duly registered, and a good president, vice-president, and a paid secretary elected. I for one shall be most happy to join in such a movement, provided it is got up in a proper manner; but when medical assistants give their services for what they do, they cannot expect better treatment than they often receive.

Wishing this cause every success, and trusting this time the medical assistants will be united,

I am, Sir, yours respectfully,
August, 1862. A QUALIFIED ASSISTANT.

To the Editor of THE LANCET.

SIR,—Now that the grievances of medical assistants are fairly mooted, I trust they will receive such attention from those interested as may lead to their practical and permanent redress.

There are many men with ample means who, on the score of youth and inexperience, are filling the subordinate position of assistants. Happily for themselves, they are superior to the difficulties which beset the path of progress of their more needy brethren—men without money and expectations, who with questionable foresight have spent their little all on the threshold of professional existence, and to whom scanty pay and unfair restrictions are insurmountable obstacles to professional advancement.

The suggestion of "A Twelve-Years' Assistant," if adopted, would conduce much to the well-being of the unemployed of the needy class of men; but it fails altogether in supplying a remedy for the injustice of which such men and most other assistants are the victims. To achieve any real good, the first object of their efforts must be to secure, on the part of all, a stern and uncompromising resistance to the imposition of conditions,* which now not only fetter, but preclude any attempt at their self-advancement.

I remain, Sir, yours respectfully,
August, 1862. AN ASSISTANT AND SUBSCRIBER TO THE LANCET.

* As an example of these imposed conditions, I may state that I am bound by a heavy penalty of several hundred pounds to my principal and his administrators not to practise myself, or assist a brother practitioner, within a radius of ten miles. I am also denied the privilege of selling quack medicines and tooth-brushes, either for myself or others, within the same distance, and under the same penalty. Here you will observe the prohibition to do what as an honourable medical man I would scorn to do, is sufficiently degrading. Thus every avenue to honourable and dishonourable practice is rigidly closed against me.

To the Editor of THE LANCET.

SIR,—It is nearly three years since you did me the honour of inserting a letter in your columns in reply to some rather ungenerous observations made in a previous number concerning unqualified assistants. In the last few issues of THE LANCET have appeared complaints from different gentlemen concerning their treatment, and being obliged to sign a bond. The apparent hardship of being asked to sign the bond I think is removed when it is considered that the years that are required to get together a practice are all to some extent wasted by anyone getting introduced to the majority of the patients when acting as assistant, and then afterwards setting up in opposition. That is a view I and a great many medical men, I believe, take of it.

I now come to the part that more immediately concerns myself—namely, that none but qualified assistants ought to be employed. If by that is meant legally, I do not believe there would be sufficient of them to be found. I do not think that that would be the remedy. I believe that any man need not be out of an engagement for a day if he be willing to work and conduct himself in a proper manner. I am borne out in this by the words of a most respectable medical agent, and for myself I have always found that, having tried to do my best, I have always been well and liberally treated.

I am again, but I hope not for very long, obliged to sign myself,

Your obedient servant,
August, 1862. UNFORTUNATELY UNQUALIFIED.

H. E. S. — There is no more efficient mode than careful and persevering syringing.

A District Medical Officer is certainly entitled to his fee.

NEW JURIES ACT.

To the Editor of THE LANCET.

SIR,—Permit me to call your attention to the fact that the provisions of the Medical Act of 1858 exempting *all registered persons* from liability to serve on juries appear to have been entirely overlooked by the Home Secretary and the framers of the new Juries Act.

By reference to Schedule A of the Medical Act, it will be seen that medical practitioners, under *eleven* different heads, are admissible for registration, and consequently exempt from juries. But in the precept to overseers contained in the Schedule to the new Juries Act, only *three* of those heads are recognised—namely, the Royal College of Physicians of London; the Royal Colleges of Surgeons of London, Edinburgh, and Dublin; the Apothecaries' Company of London. It is plain, therefore, that if the overseers act upon the letter of their instructions, they may include many registered practitioners, and give them the trouble of an appeal.

I am, Sir, yours obediently,
Bucklersbury, August, 1862. B. B. ORRIDGE.

Scrutator.—1. We incline to the opinion expressed by our correspondent; but even if laceration had occurred at the time of delivery, it does not necessarily follow that there was any want of skill on the part of the medical attendant. 2. It is difficult to suppose that laceration could have taken place during parturition, and the injury not have been discovered until three months afterwards. The history of the case as given by the accoucheur seems clear and satisfactory; and as he will no doubt have the benefit of the evidence of the gentleman called into consultation, it would appear that the defendant has a sufficient answer to the charge which is brought, as we think, most unjustly against him.—3. He will not be affected by having only the diploma in question; it qualifies him to practise in that branch. The young gentleman who subsequently took charge of the case and operated upon the patient will place himself in a very awkward position if he should appear as a witness against his professional brother.

THE NEW PHARMACOPŒIA.

To the Editor of THE LANCET.

SIR,—The "Battle of the Grains" has ended, I am informed, in the defeat of the Pharmacopœia Committee. However desirable the alteration proposed by them might at one time have appeared, the influence and representations of those high in authority have been successful in overruling an innovation of so daring a character.

Two works emanating from the Medical Council (now incorporated by Act of Parliament) have received legislative patronage, the Medical Register and the British Pharmacopœia. Of the latter publication of course I speak prospectively; its issue cannot, however, after the perusal of the Report from the Committee, presented at the meeting of the Medical Council in May last, be much longer delayed.

Now, Sir, my object in penning these few lines is to inquire whether it is likely we shall have a repetition of what occurred some time since at Guernsey, where, it may be fresh in your recollection, a homœopath, occupying a prominent position in the Royal Militia, was allowed to ride roughshod over his medical associates. Here will be a work compiled by the ablest men in the kingdom—the medical man's text-book, so to speak—in the hands of nearly every registered practitioner and pharmaceutical chemist in the country, taken also by all hospitals and dispensaries. Is such a compilation to be allowed to count for nothing in any similar case? I trow not. Such a national standard work is another death blow to homœopathy.

I am, Sir, yours, &c.,

August, 1862. MEDICUS.

A Student of Dentistry.—1. We believe that gutta percha in combination with silica constitutes what is known as "Jacob's Stopping."—2. "Vulcanite" is a compound of sulphur and caoutchouc.

HUNGARIAN AND GREEK WINES.

WITH John Bull's natural love for good cheer, it is surprising that he should have consented for so long to be deprived of the fine wines of Hungary, Greece, and other European countries, being compelled to drink from year to year fiery sherry and gouty port. The recent alteration in the tariff has led to the introduction of a variety of light and agreeable wines, those of Hungary being amongst the best, although as yet but little known in this country. The red Hungarian wines in particular are justly celebrated, being for the most part superior to the French red wines, possessing more body and flavour, with less acidity. We are led to make these remarks in consequence of having received from Mr. Denman, of Fenchurch-street, some samples of Hungarian and Greek wines. Of the red Hungarian wines, the Ofner, at 24s. per dozen, is a good wine; but the Erlauere, at 28s., is a decidedly fine wine, both as respects strength and flavour. Of the white wines, those which pleased us most were the Badacsonyer, at 24s. per dozen, a wine of full and delicate bouquet and flavour, and the Dioszegher, at 32s. per dozen. Of the two Greek wines sent, the St. Elie, at 24s., is a thin, oily wine, having a peculiar flavour, but resembling somewhat that of sherry; while the Corinthe, at 24s., is a pleasant ladies' wine.

THE TITLE OF "DOCTOR."

To the Editor of THE LANCET.

SIR,—I have read with much pleasure an excellent letter by "CENSOR," on the title of Doctor, in your last number. "No Fellow, Member, or Licentiate of the College of Physicians shall assume the title of Doctor of Medicine, or use any other name, title, designation, or distinction, implying that he is a graduate in Medicine of any University, unless he be so." They all have taken this oath. How can they, in direct violation of the oath they have taken when admitted, put Dr. on their door, and sign themselves M.D., knowing they subject themselves to a fine of £10, or to being degraded?

I am, Sir, yours truly,

August, 1862. ANOTHER CENSOR.

Comparative Physiologist.—Mr. Duncan, a well-known veterinarian at Fife, has seen a boy suffer severely with all the symptoms of epizootic aphthæ, his mouth being so sore as to prevent any food being taken for several days.

STATISTICS OF CHOLERA AND OTHER GRAVE DISEASES.

To the Editor of THE LANCET.

SIR,—I have long thought that it would be very important to obtain in future an annual statement of the number of deaths of all the great diseases—cholera, &c. &c., so as to be able to show yearly the per-centage of deaths as to population in the kingdom of Great Britain and Ireland, also of India and the colonies, also of foreign countries; and when in any year there shall be any very great increase, to exhibit the causes. The cholera in 1831 was very extensive, and in India in the years 1861-62 the cholera largely prevailed. The famine of 1861 and beginning of 1862 caused great sickness. The N.W.P. of India suffered most severely. Yours faithfully,

Oriental Club, August, 1862. W. H.

A Young Practitioner.—Probably as suspected. Great caution is requisite in giving powerful nervine medicines where the urine is albuminous. Opium, veratrum, aconite, and digitalis may under such a condition lower the pulse quickly and greatly, and be followed by alarming syncope or death.

Mr. P. G. White is thanked for his letter. He will perceive that the subject has not escaped our notice.

NOMEN.—Baker's Law of Coroner, 12mo, 7s. Butterworth, Fleet-street.

MALIGNANT PUSTULE.

To the Editor of THE LANCET.

SIR,—Dr. Wm. Budd is doubtless deserving of the thanks of the profession for his able paper on "Malignant Pustule," read at the recent meeting of the British Medical Association. But, as an old Bartholomew's man, I venture to state that the late Harvey Ludlow brought the subject of malignant pustule and charbon before the Abernethian Society some seven or eight years ago, in a communication illustrated by cases occurring under his own observation in London, and that he there alluded to all the points contained in Dr. Budd's paper, with the exception of that relative to the temperature at which animal poisons are rendered inert.

It is quite possible that Harvey Ludlow's paper may have been published in the "Transactions of the Abernethian Society," and if so, Dr. Budd may be glad to be informed of the fact.

I am, Sir, yours obediently,

Clay Cross Collieries, August, 1862. WM. JAS. WILSON, M.R.C.S.E.

A Sportsman.—According to a high authority, M. Renault, spontaneous rabies is of very rare occurrence.

THE communications of *Dr. Wade* and *Mr. Gaine* shall be inserted next week.

T. T.—The average mortality in the civil hospitals of New York and Philadelphia ranges from seven to ten per cent. of the total number of patients.

STATISTICS OF FEVER.

To the Editor of THE LANCET.

SIR,—In the pages of your well-known journal I observe that in June last the return of deaths for one week from fever reached the high figure of 82. Of these, 39 are set down to typhus, 17 to typhoid, and the rest to "fever." Now, it strikes me that this last is very vague, and calls for explanation; for however physicians may differ as to the number of poisons capable of causing fevers, they at any rate are agreed that there are several types of the disease which are readily distinguished from each other. Such has not been the case in the present instance. Probably some of your numerous readers will be able to explain the point, and by so doing oblige,

Your obedient servant,

Dublin, August, 1862. HENRY KENNEDY, M.B., &c.

Semper Virens, (Stoke Newington.)—1. The practitioner could not claim a fee from the police authorities.—2. He could not recover his charges.—3. There is no such guide. The publication of one would be of service to the profession.

R. P.—Mr. Abernethy died in the year 1831.

COMMUNICATIONS, LETTERS, &c., have been received from—Dr. Hughes Bennett; Mr. C. H. Moore; Mr. C. Heath; Dr. Thos. K. Chambers; Dr. P. Fraser; Prof. J. Simonds, Veterinary College; Dr. Henry Kennedy, Dublin; Mr. Watson; Mr. C. Gaine; Dr. Wade, Birmingham; Dr. Rayner, Great Malvern, (with enclosure;) Mr. Welch, Southampton, (with enclosure;) Dr. Hillier; Mr. Mumford; Mr. Thompson, Billinghay; Mr. Longhurst, (with enclosure;) Mr. Wallis, Cambridge; Mr. Long; Dr. Rowden, Brighton; Mr. F. Rawle, Henley-on-Thames; Mr. J. Jackson, Wigan; Mr. T. Campbell; Mr. Evans, Birkenhead, (with enclosure;) Mr. Hutchinson; Dr. Sargent, Launceston; Dr. Cotton, Romsey; Dr. Hewson, Stafford; Mr. Talian, (with enclosure;) Mr. W. Fraser, Glasgow; Dr. Gibson, Hull, (with enclosure;) Mr. C. Gann, Bath; Mr. Romilly; Mr. Watts, Frampton-on-Severn; Mr. Martin, Leeds; Mr. Biddle, Leeds, (with enclosure;) Mr. Daig; Mr. Mercer, Wadhurst, (with enclosure;) Mr. A. Evans, Lampeter, (with enclosure;) Mr. Parsons, (with enclosure;) Mr. Stridinger; Mr. J. Sharpe; Mr. W. Hughes, Oswestry, (with enclosure;) Mr. Sutton, Martin; Mr. Mayhew; Mr. Wilson, Clay Cross; Mr. Kilburn, (with enclosure;) Mr. Barker; Mr. C. J. Walley, (with enclosure;) Dr. Mouritz, Dunlop, (with enclosure;) Mr. Vipan, Bunbury, (with enclosure;) Mr. Gell, Birmingham; Mr. Meerut, Birmingham; Mr. Brown, Huddersfield; Dr. Baker; Mr. Byrne, St. Ginnis; Mr. Higgins, Abbotts Bromley, (with enclosure;) Mr. Briggs, (with enclosure;) Dr. Brody, Edinburgh, (with enclosure;) Mr. D. Johnson, Tettenhall, (with enclosure;) Mr. Leigh, St. Ives, (with enclosure;) Mr. Towle, (with enclosure;) Mr. G. Ogilvie; Mr. Cruppa, Lything, (with enclosure;) Mr. White, Erchfont; Mr. Orridge; Mr. Beale; Dr. Munroe, Hull; Dr. Corner, (with enclosure;) Mr. A. Wood, Kirby Moorside; Dr. Tannahill, Glasgow; Mr. Edwards, Cardiff; Mr. Blanshard, (with enclosure;) Mr. T. Parsons, Leicester; Dr. Tyler, Panborough, (with enclosure;) Mr. J. Robertson, Edinburgh; Mr. Ward, (with enclosure;) Mr. W. Copsey; Mr. Joyce, Ashby de la Zouch; Mr. Bale, Newcastle, (with enclosure;) Dr. E. Thompson, Friockheim; Mr. J. W. Wakem; Dr. L.; W. A.; Medicus, (with enclosure;) A Country Member; A Subscriber of Thirty-nine Years; W. F.; A Member of the British Medical Association; Chemist, (with enclosure;) Chesterfield, (with enclosure;) A Constant Reader; Doctor; Another Censor; J. A. M.; Semper Virens; Scrutator; Dundee Royal Lunatic Asylum; R. C. C., (with enclosure;) X. Y. Z., (with enclosure;) Medicus, (with enclosure;) B. H. H.; A Subscriber of Long Standing; Quæro; A District Medical Officer; A Resident in Hartland; &c. &c.